TROPICAL DISEASES BUREAU.

TROPICAL DISEASES BULLETIN.

Vol. 20.] 1923. [No. 12.

HELMINTHIASIS.

KLIGLER (I. J.). **Helminthic Infection in Jerusalem.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1923. Mar. 15 & May 17. Vol. 17. Nos. 1 & 2. pp. 46–48.

Whilst in charge of the laboratory of the Rothschild Hospital the author encouraged local doctors to send stools from patients, irrespective of their malady. Examinations were also made of the inmates of two orphan asylums. In this way 2,369 stools (1,615 from adults and 754 from children) were examined during a period of eighteen months. The tabulated results may be accepted as characteristic for the Jewish population of Jerusalem.

Helminthic Infections in Jerusalem.

	1921.		1922.	
	Children.	Adults.	Children.	Adults.
	Number positive.	Number positive.	Number positive.	Number positive.
Ascaris	55 (51·4%)	238 (48·4%)	145 (62·7%)	101 (41·4%)
Trichiuris ..	31 (29·0%)	164 (33·3%)	53 (22·9%)	100 (40·9%)
T. nana	12 (11·2%)	19 (3·9%)	20 (8·6%)	6 (2·5%)
T. saginata ..	4 (3·7%)	56 (11·4%)	6 (2·6%)	22 (9·1%)
Oxyuris	4 (3·7%)	11 (2·2%)	6 (2·6%)	9 (3·6%)
Ancylostoma ..	1 (0·9%)	3 (0·6%)	1 (0·4%)	5 (2·0%)
Strongyloides ..	0 (0·0%)	1 (0·2%)	0 (0·0%)	1 (0·3%)
Total positive ..	107	492	231	244
Total of stools examined ..	270	1,074	484	541
Percentage positive	39·6	45·8	47·7	45·1

The very low incidence of ankylostome infection—less than one per cent.—is especially notable. Oxyuris was found in six out of eighteen consecutive examinations of appendices which came to the laboratory.

R. T. Leiper.

(12389) Wt.P.4/152 1500 12/23 Harrow G.75 3 J

VAN DEN BRANDEN (F.) & VAN HOOF (L.). **Le parasitisme intestinal chez les indigènes de Léopoldville, Congo belge.**—*Ann. Soc. Belge de Méd. Trop.* Brussels. 1923. May 1. Vol. 3. No. 1. pp. 45–52. With 1 graph in text. [2 refs.]

Figures of the prevalence of helminth infections in the Belgian Congo are given for the years 1900–15, taken from previous records, and in greater detail the findings of the authors themselves in 1920–22. The infections most frequently met with are ankylostome and ascaris. In 1900 at Léopoldville 50 per cent. of the children up to and including school age were harbouring ascarides and 77 per cent. had hookworm; in 1921 these were respectively 42·7 and 35·9 per cent., showing a reduction by more than half in the latter. Examination of 81 apparently healthy persons in a small village, Bas-Congo, revealed 67 with hookworm (82·77 per cent.) and 19 with ascaris (24·9 per cent.).

Treatment of hookworm seems to have been thorough, but reinfection soon occurred. The usual method was to give 1–2 gm. of thymol daily for four days followed by a similar course of naphthol, and then, without any interval, both these were repeated.

Schistosome infection, which in 1900 was recorded as present in 27 per cent., was in 1921 down to 4·5 per cent. No case of rectal schistosomiasis contracted in Léopoldville has been found, all having become infected in the eastern province.

R. T. L.

WATTS (R. C.). **A Note on a Helminth Survey of a Gurkha Battalion.** —*Lancet.* 1923. July 7. p. 15.

In this survey concentration methods were not used, but a loopful of faeces was simply dissolved in normal saline and examined under a coverslip. The results so obtained were as follows :—Cases examined, 561; cases infected, 139; giving ankylostomiasis, 8·5 per cent.; ascariasis, 12·2 per cent.; trichocephaliasis, 4·6 per cent. It was noted that (1) cases having infection without being inconvenienced or showing any signs whatever formed 81 per cent., (2) cases having some other disease which may mask signs of helminthic infection formed 17 per cent., (3) cases in which anaemia is marked formed 2 per cent.

All the parasites recovered belong to the species *Necator americanus.*

R. T. L.

FAUST (Ernest Carroll). **A Survey of the Helminth Parasites of Man in North China.**—*Trans. 4th Congress Far Eastern Assoc. of Trop. Med.* 1921. Vol. 1. pp. 476–481.

North China is located between two heavily infested regions, viz., Korea and Japan on the north and the Yangtze Valley in the south. It is commercially connected with both by land and water routes and the relatively low incidence of helminth infections in man and the indigenous animals requires explanation. The author has sought this in a comparative study of hospital records and of seasonal incidence. He concludes that the low incidence of infection in North China depends primarily upon the climatic conditions. With the exception of *S. japonicum* and *F. buski* all species of worms common to other areas of China have been reported from Peking. Clonorchis and Dibothriocephalus although rare in man in North China occur in dogs and cats in relatively large numbers. Viability of many species is decreased by

the extreme desiccation which takes places during the greater part of the year in North China. In addition to climate, native customs introduce a selective factor. The paper gives a table showing the percentage of infection in various parts of China but omits the figures upon which these are based. [The general result would appear to be very fallacious.]

R. T. L.

KHALIL (M.). **On the Septic Tank in the Tropics: from a Helminthological Standpoint.**—*Report of the West Indian Medical Conference, held on July 6th, 1921.*—Reprinted in *London School of Trop. Med.* (*Dept. of Helminthology*). *Collected Papers.*—1922. Part 2. No. 16. 3 pp.

In this, one of the preliminary reports of the Filariasis Commission of the London School of Tropical Medicine which visited British Guiana in 1921, an account is given of the result of an enquiry into the helminth content of the effluents of a number of septic tanks in use in Georgetown and its neighbourhood. The most striking was that made at Tank No. 6, which gave an average output of 2,475 ankylostome eggs, 2,025 ascaris eggs and 225 free-living nematodes per gallon. The eggs in the effluent showed little or no development but were proved experimentally to be capable of normal development. It is inferred that the septic tank, as used in British Guiana, has no destructive action on the eggs of parasitic worms and that any value it may possess in controlling the spread of these infections lies in the concentration of infected faecal matter into one channel. A concluding paragraph states that $CuSO_4$ effectually neutralizes the offensive odour of the effluents.

R. T. L.

HALL (Maurice C.). **Notes on the Present Status of Anthelmintic Medication.**—*U.S. Nav. Med. Bull.* 1923. June. Vol. 18. No. 6. pp. 673–679.

The efficacy of the oleoresin of male fern and of kamala against *Fasciola hepatica* appears to depend in part on the blood-sucking habit of this fluke, as the nearly related *Dicrocoelium dendriticum* is unaffected. The claims to success in the medication for larval cestode infestations have not been substantiated for such drugs as male fern, neosalvarsan and novarsenobenzol. In trichinosis the serum of animals which had recovered from infection probably has antibodies which are of service in neutralizing certain helminth toxins responsible for part of the pathological conditions. No definite results have been obtained so far against *Filaria bancrofti* infection, but MACFIE reports success in the treatment of guineaworm by intravenous tartar emetic, and other writers have had similarly good results from the use of novarsenobenzol. One cc. of ascaridol, the most active constituent of oil of chenopodium, is apparently sufficient to remove ascarids from adult persons. In the treatment of hookworm by carbon tetrachloride, which was originally introduced by the author, a dose of 3 cc. appears to be safe and sufficiently effective to make larger doses inadvisable. "Recent studies indicate that the rather mild symptoms of discomfort which follow the drug are largely avoided if salts are given two or three hours after." It should not be given with castor oil, as this diminishes its efficacy. Santonin is more effective against ascarids in repeated small doses than in one large dose. At the present time aluminium compounds,

in proprietary forms, are being advocated in Europe for the cure of oxyuris. In veterinary practice arecoline hydrobromide ($\frac{1}{8}$–$\frac{1}{4}$ gr.) has been given to dogs with tapeworm, and a case is mentioned in which an adult person passed a tapeworm after a dose of one thirty-second of a grain. This drug requires no purgative as it is in itself purging in action.

R. T. L.

KEUKENSCHRIJVER (N. C.). **Wormziektebehandeling met een mengsel van tetrachloorkoolstof en oleum chenopodii.** [Treatment of Worm Disease with a Mixture of Carbon Tetrachloride and Chenopodium Oil.]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1923. Vol. 63. No. 3. pp. 474–480. With 3 text figs.

Reports on 20,000 cures with a mixture of seven parts carbon tetrachloride and one part chenopodium oil without any untoward effects. Storing of the mixture increases its toxicity; it should be freshly prepared before use. It expels 97 per cent. of the roundworms, and is therefore especially recommended in regions where heavy ascaris and hookworm infection coexist.

For the sake of elimination of soil pollution the author recommends the erection of permanent latrines at the coolie lines, a type of which is described. He also gives a sketch of an automatic tap.

W. J. Bais.

REED (J. G.). **Carbon Tetrachloride and Oil of Chenopodium in Helminthiasis.**—*Brit. Med. Jl.* 1923. June 23. pp. 1048–1049.

Carbon tetrachloride alone is a fairly efficient anthelmintic for ascaris but has a much higher efficiency and practically never fails when given in combination with oil of chenopodium, which is soluble in it. The drug appears to have no effect against trichocephalus and strongyloides. For adults the routine now followed by the author is :—One ounce of castor oil at night followed next morning by a mixture containing 1 drachm of carbon tetrachloride, 1 cc. of oil of chenopodium and $\frac{1}{2}$ oz. of liquid paraffin. Almost all the patients complain of feeling drunk for a time varying from a few minutes to a day. As a rule three or four motions result within 24 hours and these often contain numerous ascaris worms. Occasionally slight vomiting, headache or pain in the abdomen occur. Notes are given of 6 cases out of 84 treated in which death, from one cause or another, occurred within a few weeks, and the post-mortem findings are briefly summarized.

R. T. L.

i. SUZUKI (S.). **On the Resistance of the Encysted Cercaria of** *Fasciolopsis buski.*—*Taiwan Igakkai Zasshi* (*Jl. Med. Assoc. of Formosa*). 1923. Mar. No. 227. [In Japanese. English summary, p. 3.]

ii. NAKAGAWA (Kōan) & SUZUKI (Sotowo). **Investigation of the Life-history of** *Fasciolopsis buski.* **(Second Report.)**—*Ibid.* May. No. 228. [In Japanese. English summary, p. 1.]

i. "The author examined the resistance of the encysted cercaria of *Fasciolopsis buski* against physical and chemical influences during the hot season of Formosa, viz., the three months August, September and October.

"The encysted cercaria, while more resistant than the egg owing to its structure, dies within a comparatively short time in salt water of more than 5 per cent., and saturated lime-water and soy." Its resistance against desiccation is not high, whereas the resistance against acids, *e.g.*, acetic or hydrochloride acid, is comparatively strong.

ii. *Fasciolopsis buski* thrives well in the pig. In experimental infections in other animals, *e.g.*, dogs, cats, guinea-pigs, rabbits, white rats, and goats, although capable of surviving the worms gradually fail in their growth and eventually die without completing their full development.

R. T. L.

KOBAYASHI (Harujiro). **A Distomid Larva infesting the Egyptian Mullet.**—*Jl. Helminthology.* 1923. July. Vol. 1. No. 3. pp. 97–98. With 1 text fig.

The Japanese mullet has been shown by ONCHI and NISHIO to be the second intermediate host of *Heterophyes nocens.* The author on his homeward journey from Europe purchased some Egyptian mullet in Port Said and found in them encysted cercariae. From the morphology and locality it is concluded that the encysted worms are the young of some species of *Heterophyes*, one closely allied to *H. heterophyes*, for the presence and position of the genital sucker is characteristic. The cysts are spherical and 0·16 mm. to 0·19 mm. in diameter. The cyst wall is moderately thick and tough. The enclosed distome is folded upon itself but when extended measures 0·2–0·46 mm. in length, and the surface of the body is covered with scale-like spines.

R. T. L.

KHALIL (M.). **A Preliminary Note on the Second Intermediate Host of *Heterophyes* in Egypt.**—*Jl. Helminthology.* 1923. July. Vol. 1. No. 3. pp. 141–142. With 3 figs. in text.

In the mullet, *Mugil cephalus*, from Lake Menzaleh encysted cercariae were found which resembled in their general anatomy the young of Heterophyes. Feeding experiments on cats have proved successful. Eight days later Heterophyes were found in the gut and on the 14th day after feeding eggs were passed. The adults were indistinguishable from *H. heterophyes.*

R. T. L.

HOFFMANN (W. H.) & GUERRA (A.). **Distoma hepático originando un absceso muscular.** [*Fasciola hepatica* causing a Muscle Abscess.] —*Rev. Med. y Cirug. Habana.* 1923. Aug. 25. Vol. 28. No. 16. pp. 558–561. With 2 figs.

The patient, a man of 30 years, by occupation a charcoal burner, was attacked suddenly with acute pain over the right costal margin and a swelling developed there in the course of three or four days. The condition was thought to be either a tuberculous abscess of the rib or a pointing liver abscess. When incised the pus proved to be in the muscle and an immature *Fasciola hepatica* was found. It measured only 5–6 mm. in length by 2 mm. in breadth.

H. Harold Scott.

i. KOSAKA (Keiji). [**On the Spread of Liver Distomiasis in Gifu Prefecture. II. Communication.**]—*Aichi Igakkai Zasshi* (*Jl. of Aichi Med. Soc.*). 1923. Jan. Vol. 30. No. 1. [Summarized in *Japan Med. World.* Tokyo. 1923. June 15. Vol. 3. No. 6. pp. 139–140.]

ii. ASAOKA (Ryutaro). [**On the Spread of Liver Distomiasis in Miye Prefecture. II. Communication.**]—*Ibid.* [Summarized in *Japan Med. World.* Tokyo. 1923. June 15. Vol. 3. No. 6. pp. 139–140.]

i. The author has looked for cercariae of *Clonorchis sinensis* in the fish living in all the rivers and brooks of the Gifu Prefecture and found the cercariae of the parasite in both its first and second intermediate hosts in the counties Inaba, Motosu, Ammpachi, Kaidzu, Fuwa, Yoro and Hajima.

ii. In the village Nagashima, in Miye Prefecture, 48 out of 411 (11·6 per cent.) of the school children were infested with *Clonorchis sinensis.* The first and second intermediate hosts and the cercaria of the parasite were detected in the village.

R. T. L.

CAWSTON (F. G.). **South African Larval Trematodes and their Intermediary Hosts.**—Reprinted from *Trans. Roy. Soc. S. Africa.* Vol. 11. pp. 119–130. [11 refs.]

From an examination of over 10,000 molluscs collected from rivers along the East Coast from Port Elizabeth to Lourenço Marques it would appear that there are at least 34 distinct species, including a few bivalves. The localities in which the molluscs have been found, the species of mollusc and the larval trematodes harboured by each species have been tabulated, thus giving in handy form much information already published in various communications by the author. A second table classifies the cercariae under the various systematic groups. [Many of the species named in this list are undoubtedly synonyms of forms described and named previously by LOOSS, SONSINO, and other observers. Thus, if *C. pigmentosa* be the cercaria of *Fasciola gigantica* it is synonymous with *C. obscura* Sonsino from the same mollusc]. Dr. K. SHARPE supplies the following useful information :—

" Along the south coast of Natal most of the smaller rivers and streams appear to be infected with Bilharzia. Amongst those that are definitely known to harbour this disease are the following : Umzimbi, Umtwalumi, Ifafa, Umzinto, Isezela, Umpambinyoni, Amahlongwe, Umquahumbi (a tributary of the Illovo river), Umlaas, Umhlatuzan and Umbilo rivers.

" The midlands appear to be fairly free from this infection, there being only two small rivers and one stream whose waters are known to harbour Bilharzia. These are the Umsindusi river, which is a tributary of the Umgeni, and which flows through the Maritzburg district. The Dorp Spruit, which feeds the Umsindusi, and the Sampofu river, running through the Umsinga district and a tributary of the Tugela river.

" In the districts along the north coast, Bilharzia infection seems to confine itself to a few of the smaller spruits. The Mazule stream and the Umkunyana stream near Melmoth are infected, and the spruits around Eshowe also are known to harbour the disease.

" In addition to the rivers mentioned above, there are a number of small streams which are suspected of harbouring the infection. Among these are the Palmiet stream, a tributary of the Umbilo river, the streams around Stanger, the Sinquasi river, the rivers in the Ginginhlovu district, that portion of the Umhlatuzi which flows through the N'Kandhla district, and all rivers and spruits around Dannhauser. The spruit running through Burnside Colliery is also suspected."

R. T. L.

CAWSTON (F. G.). **Possible Hosts for the Bilharzias in Portuguese East Africa.**—*Jl. Trop. Med. & Hyg.* 1923. July 2. Vol. 26. No. 13. pp. 228–229. [1 ref.]

At Beira, in Portuguese East Africa, immature specimens of an Isidora resembling *I. natalensis* and numerous specimens of *I. forskali* were found by the author, who had on the Northern Coast of Natal found *I. forskali* infested occasionally with a cercaria resembling that of *S. haematobium*. Schistosome infection of *Isidora* spp. is only very occasional in South Africa. The author suggests that as *Physopsis africana* occurs in Egypt it may act there as one of the intermediate hosts. [It must, however, be of great rarity if it occurs at all in Egypt.]

R. T. L.

CHESTERMAN (Clement C.). **Note sur la bilharziose dans la région de Stanleyville (Congo Belge).**—*Ann. Soc. Belge de Méd. Trop.* Brussels. 1923. May. Vol. 3. No. 1. pp. 73–75. With 2 figs.

At Yakusu, near Stanleyville, intestinal bilharziasis only occurs, and the cases show terminal spinal eggs somewhat more elongated that those typical of *S. haematobium*. The local intermediary host is very like if not identical with *Bullinus contortus*.

R. T. L.

LEGER (Marcel) & BÉDIER (E.). **Index bilharzien** (*Schistosomum haematobium*) **chez les enfants de Dakar.**—*Bull. Soc. Path. Exot.* 1923. Apr. 11. Vol. 16. No. 4. pp. 276–278. [6 refs.]

One hundred and ninety-five young negroes between 9 and 14 years of age from the schools of Dakar and its suburb, Medina, were examined for vesical bilharzial infection. Of 127 at Dakar, 8, *i.e.*, 6·3 per cent., passed ova of *S. haematobium*. No eggs were found in the faeces of any of these cases. In Medina, 26 out of 68 proved to be carriers, *i.e.*, 38·8 per cent. In 10 of these cases the eggs were numerous.

R. T. L.

HALL (A. H.). **Report on Bilharzia Disease in Basrah together with Notes on Treatment carried out.**—*Annual Administration Report of the 'Iraq Health Services for the year 1921.* pp. 58–59.

Dr. A. H. Hall's report on bilharzia infection in Basrah shows that about half of the population of school age suffers from the disease and about one-third of the adult working-class population. It appeared that Christian and Jewish children showed less susceptibility than Mohammedan children, and this was borne out by the comparative results of an examination of the pupils of the American School in 1922. In this, a mixed school, it was found that of the Mohammedan children 57 per cent. were infected, Christian children 30 per cent., and Jewish children 27 per cent. This is probably due, however, to the fact that they bathe in the creeks much less frequently than do the Mohammedan children. The incidence of the disease seems greater about the age of 8 or 9 years, and there is undoubted evidence of a tendency towards spontaneous cure. That 33 per cent. of a batch of civil prisoners were found infected shows, however, that the disease does persist to adult life. The masters

maintain that they cannot get "full value" out of infected boys. The average age of the boys treated was 10, and the total dose of tartar emetic aimed at in these cases was 10 gr. Eggs disappeared from all uncomplicated cases after 6 gr., and even before that all symptoms had disappeared. The children were re-examined after nine months and in 33 per cent. the eggs had reappeared, but this may have been due to reinfection.

R. T. L.

CHRISTOPHERSON (J. B.). **Remarks upon a Photograph of an Endemic Focus of Bilharzia Disease in Portugal; Specimens of the Intermediary Host,** *Planorbis dufourii* **(Graells).**—*Proc. Roy. Soc. Med.* (Sect. Trop. Dis. & Parasit.). 1923. Aug. Vol. 16. No. 10. pp. 47–48.

The photograph (exhibited but not reproduced) showed the endemic focus at Tavira to be a natural excavation in limestone constantly filled from a thermal spring at a temperature of 25° C. At least 16 out of the 64 washerwomen who used this tank were infected with vesical bilharziasis. The tank is infested with *Planorbis dufourii*, and these have been found naturally infected. At Alportal, another endemic focus, situated near to Tavira, the river is the source of infection, and there the temperature of the water is only 13° C. No species of *Bullinus* has been recorded from Portugal. [*P. dufourii* is the mollusc recorded in earlier communications as *P. corneus* and *P. metidjensis*.]

R. T. L.

KHALIL (M.) & LEE (C. U.). **Bilharzia Infection in the New World.**—*Report of the West Indian Medical Conference held on July 8th, 1921.*—Reprinted in *London School of Trop. Med.* (*Dept. of Helminthology*). *Collected Papers.*—1922. Part 2. No. 17. 4 pp.

A preliminary account is given of the visit of Professor R. T. LEIPER and Dr. C. U. Lee to Dutch Guiana in 1921. *S. mansoni* was found endemic in the City of Paramaribo. *Planorbis olivaceus* occurred in the rice-fields on the outskirts of the city and in the freshwater trenches in some of the streets. Five per cent. of the Planorbis collected in the latter were naturally infected with the cercaria of *S. mansoni*.

With specimens taken to British Guiana the authors ascertained that $CuSO_4$ diluted to one part per million of rainwater was lethal, whereas 1 in 200,000 was the highest lethal dilution when the local canal water (Lamaha water) was used, due to the presence of humic acid and other organic substances in the water. Difficulties are related which arose in an attempt to eradicate a species of Planorbis commonly found in the Botanic Gardens in Georgetown.

R. T. L.

CAWSTON (F. G.). **Early Indications of Bilharzia Infestation.** [Correspondence.]—*S. African Med. Rec.* 1923. June 9. Vol. 21. No. 11. pp. 263–264. [4 refs.]

The author had become infected with *S. haematobium* during his investigations on the carriers of this fluke in South Africa. The migration of the young flukes from the skin through the lungs and other parts was attended by a temperature rising to 102° F., oppression

on deep respiration and slight stabbing pains in the precordial region. X-rays later revealed an enlarged liver. The most marked sign was a heightened eosinophile count of 39·5 per cent. No ova were isolated until seven months later, when the eosinophilia had fallen to 12 per cent. Antimony treatment eradicated the infection, but an 11 per cent. eosinophilia persists although the antigen test usually becomes negative in a week or two ; in the specific case it does not appear to have been made. [The author's experience will indicate the danger of inviting, through the press, farmers and laymen to collect snails for investigation purposes.]

R. T. L.

SINDERSON (H. C.) & MILLS (E. A.). **Rectal Papillomata in** *Schistosoma haematobium* **Infestations.**—*Brit. Med. Jl.* 1923. June 9. pp. 968–969. With 4 text figs.

The experience of the authors in Mesopotamia fully supports the observation that the ova of *S. haematobium* are to be found commonly in the faeces and that occasionally they form intestinal papillomata. In one case a polypoid growth was microscopically examined. The peripheral portion of the growth showed an advanced hypertrophic condition of the rectal glandular tissue, with the formation in places of long papillomatous prolongations of the mucosa. In certain superficial portions of the growth there is a tissue resembling granulation tissue in which numerous ova are present, blood-vessels are numerous and ulceration is apparently occurring. In the central portion of the growth glandular structure is entirely absent and the fibrous tissue elements show considerable increase, forming a well-marked stroma in which are embedded numerous ova. In the vicinity of ova containing miracidia, which stain well [presumably alive when fixed] the infiltrating cellular type, is the eosinophile cell ; while in the neighbourhood of degenerating ova, evidenced by lack of nuclear staining, the mononuclear leucocyte is predominant.

R. T. L.

CHRISTOPHERSON (J. B.). **Specimens of (1)** *Schistosoma bovis* **and of its Snail Carrier ; (2) the Intermediate Hosts of** *Schistosoma mansoni* **Brazil.**—*Proc. Roy. Soc. Med.* (Sect. Trop. Dis. & Parasit.). 1923. Aug. Vol. 16. No. 10. p. 56.

1. The author quotes MILTON's suggestion that cases of rectal infection with *S. haematobium* without vesical symptoms—such as described by LOW, from Uganda, in 1907, and CHESTERMAN, recently, from the Belgian Congo, and CLAPIER, from French Congo—are possibly cases of *S. bovis*. The carrier of *S. bovis* in Natal is *Physopsis africana*.

2. The Brazilian intermediate hosts of *S. mansoni* (received from Prof. LUTZ) are *Planorbis olivaceus* and *P. centimetralis*—the latter being found infected in North Brazil.

R. T. L.

CAWSTON (F. G.). **Some Notes on the Differentiation of Closely-Allied Schistosomes.**—*Parasitology.* 1922. Dec. Vol. 14. Nos. 3 & 4. pp. 245–247. [9 refs.]

This short article contains nothing new and little that has not been published on previous occasions. The purpose of the author

would appear to be the communication of the following table for the differentiation of "Schistosomes" in South Africa :—

		Approximate length of cercaria in mm.	Pairs of mucin glands in cercaria.
S. haematobium	(*C. crispa*) ..	0·52	3 acidophilic with large nuclei.
S. mansoni	(*C. spinosa* ?)	0·39	2 acidophilic with large nuclei. 4 basophilic with small nuclei.
S. japonicum	— ..	0·5	5 acidophilic with large nuclei.
S. ?	(*C. indicae*)..	0·39	5 acidophilic.
S. bovis	(*C. octadena* ?)	0·43	2 acidophilic. 2 basophilic ? pharynx.
S. ?	(*C. oculata*)..	0·35	3 acidophilic with small nuclei.
S. ?	(*C. secobii*) ..	0·55	4 all neutrophilic.
S. ?	(*C. gladii*) ..	0·92	3 with small nuclei.

		Testes in adult.	Ova in utero.
S. haematobium	(*C. crispa*) ..	About 4	Numerous spine-pointed.
S. mansoni	(*C. spinosa* ?)	About 8	Usually one lateral-spined.
S. japonicum	— ..	About 7	Numerous ova, practically aspinose.
S. bovis	(*C. octadena*)	—	Numerous spine-pointed.

The author is hardly correct in stating that "at one time it was assumed that the [Bilharzia] worms could be determined in accordance with the species of snail in which the cercariae were found."

R. T. L.

UGI (Sekitaro). [**Experiments on** *Schistosomum japonicum*, **together with the Results of the Examination of the Feces of the School Children and the Disturbances of the Physical Constitution of the Japanese, with Special Regard to the Intestinal Parasites.**]—*Gun-i-dan Zasshi* (*Jl. Jap. Army Med. Assoc.*). 1922. Dec. No. 118. [Summarized in *Japan Med. World.* Tokyo. 1923. Apr. 15. Vol. 3. No. 4. p. 89.]

Those most heavily infested with *S. japonicum* are the young men between school ages and 20 years. The infective cercariae cannot infect the skin from a solution of 2 per cent. of human excrement. The rice-fields, which are heavily manured with human excrement contain no molluscan hosts, although the ditches around are profusely inhabited by them. This fact has been utilized as a means of segregating and eliminating the snails. Antimony trioxide in experimental animals has a remarkable efficacy on the ova and adult worms, although its use cannot be immediately adapted to human cases.

R. T. L.

MELENEY (Henry Edmund) & FAUST (Ernest Carroll). **The Route of Migration of** *Schistosoma japonicum* **in the Body of its Final Host.** —*Proc. Soc. Experim. Biol. & Med.* 1923. Vol. 20. No. 7. pp. 397–398. [3 refs.]

The authors, using a different technique, confirm the conclusions of MIYAGAWA and TAKEMOTO (1921) that the cercariae migrate through the pulmonary veins to the aorta and mesenteric arteries into the capillaries of the stomach and intestine, whence they reach the portal veins [this *Bulletin.* Vol. 19. p. 202].

R. T. L.

ISOBE (M.). **Biological Observations on the Cercaria of the Japanese Blood Fluke.**—*Taiwan Igakkai Zasshi* (*Jl. Med. Assoc. of Formosa*). 1923. Mar. No. 227. [In Japanese. English summary, pp. 1–2.]

The temperature of the water controls the escape of the cercariae of *S. japonicum* from its molluscan host. At 15° C. none were seen to escape. At 18–19° C. four hours are necessary, whereas cercariae escape within two hours at 24° C. The character of the water—filtered or ditch water—has little influence. Lightness and darkness are similarly indifferent agents. The cercariae survive one or two days at 23–25° C. They cannot swim against a current, and whilst swimming keep the body always slanting at an angle of 30° with the horizontal.

R. T. L.

CHRISTOPHERSON (J. B.). **The Treatment of Bilharziasis with Antimony.** —*Jl. Trop. Med. & Hyg.* 1923. June 15. Vol. 26. No. 12. p. 211.

Attention is drawn to the fact that MACDONAGH published the following remarks: "I should like to mention that I have had great success in treating cases of bilharzia with intravenous injections of antimony," in the 1915 edition of his book, "Biology and Treatment of Venereal Diseases." Although this was the earliest record of the use of antimony in bilharziasis, it could not have been more effectually pigeon-holed; and it is not surprising that the record remained entirely unknown to the workers in tropical medicine until MACDONAGH himself drew attention to it after Christopherson had later but independently worked out [with great scientific acumen] the use and effect of antimony in this disease.

R. T. L.

i. ISOBÉ (M.). [**Some Studies on the Life History of** *Taenia saginata* (?). (**Report I**).]—*Taiwan Igakkai Zasshi* (*Jl. Med. Assoc. of Formosa*). 1922. May. No. 222. [In Japanese, pp. 1–28. With 4 figs. & 1 plate. English summary, pp. 1–2.]

ii. ——. [**On the Resistance of the Egg of** *Taenia saginata* (?).]—*Ibid.* [In Japanese, pp. 29–75. English summary, pp. 2–3.]

i. In artificial gastric juice at 37–38° C. little change occurs in the eggs of *T. saginata*, but when these eggs are afterwards transferred into artificial intestinal juice at the same temperature the shells turn slowly from brownish into black, expand and become rounded, and in about two hours split to liberate the embryo which is still enclosed in its membrane. After liberation the embryos do not show any movement, nor when they are transferred to physiological saline, diluted pig's bile, or other solutions containing either sugar or alkali. If, however, they are transferred to a mixture containing sodium chloride 1 per cent., sodium carbonate 0·5 per cent., in equal parts, with one drop of pig's bile added for every cubic centimetre and kept at 37–38° C., the embryos soon begin to move actively within their membranes and the hooks seem to be used to wear down the membrane at some place or other and so produce a slight cut which permits the embryo to escape.

ii. It is impossible from the appearance of the eggs to tell microscopically whether the enclosed embryo is alive or dead. The author

finds that all the eggs treated with hot water were promptly digested in artificial digestive juice, but eggs not treated in any way are never harmed by the digestive fluid. Under certain experimental conditions the embryos can be released from the egg-shell and can be made to move (see above). Using this as a test, the eggs of *T. saginata* were submitted to various injurious conditions, *e.g.*, to disinfectants, putrefaction, heat, cold, dryness, etc. These experiments showed that the eradication of the parasite by destruction of the eggs is practically impossible.

R. T. L.

BANERJEA (Sauranganath). **A Case of Hydatid Cyst of the Liver.**—*Indian Med. Gaz.* 1923. June. Vol. 58. No. 6. pp. 263–264

The case of hydatid recorded is that of a Hindu Brahmin, a student of Ravenshaw College, Cuttack, 20 years old, who had never left India and whose geographical range had been limited to Cuttack and Dhenkanal. The signs and symptoms were strongly suggestive of the presence of abcess of the liver.

R. T. L.

TOMB (John W.). **A Treatment for Tapeworm.** [Correspondence.]—*Lancet.* 1923. June 2. p. 1131.

In a very intractable case of tapeworm infection where a fourth treatment with male fern had, as on previous occasions, removed the whole of the worm except the head, the author administered 15 gr. of betanaphthol in tabloid form each morning for ten consecutive occasions on an empty stomach with a cup of tea. No food was allowed until lunch time. This treatment has been tested since by others and has proved uniformly successful.

R. T. L.

GALLI-VALERIO (B.). **Recherches helminthologiques. 1. Infection expérimentale des Cyclops du lac des quatre cantons avec les embryons du** *Dibothriocephalus latus*. **2. Les migrations des ascarides dans l'organisme.**—*Schweiz. Med. Woch.* 1923. Mar. 22. No. 12. pp. 314–316.

1. There are certain lakes in Switzerland in which occur *Cyclops strenuus* and *Diaptomus gracilis*, the first intermediaries, and pike and Lota, the second intermediaries, of *Dibothriocephalus latus*, but in which, nevertheless, Dibothriocephalus infection is not endemic. Successful attempts were made to infect experimentally the susceptible crustaceans from one of these lakes, viz., Lake of Lucerne. The author concludes from his laboratory experiments that the lakes at present free from infection are liable to become infected at any time. Attempts to implicate other invertebrates as the primary intermediary were unsuccessful. It is noted that Ephemerid larvae consume the Bothriocephalus eggs with avidity.

2. The author has repeated upon rats and white mice the infection experiments of STEWART, RANSOM and YOSHIDA, using *Ascaris canis* and *A. lumbricoides*. He has never found the larvae in the peritoneum and confirms the view that migration of the larvae to the lungs is by way of the blood-vessels.

R. T. L.

NOC (F.). **Chimiothérapie des filariose. Action de l'amino-arsénophénol (132) sur** *Microfilaria bancrofti.*—*Bull. Soc. Path. Exot.* 1923. Feb. 14. Vol. 16. No. 2. pp. 126–132. With 2 text figs. [16 refs.]

In three cases of infection with *Filaria bancrofti* the author has found that intramuscular injections of amino-arseno-phenol (preparation No. 132 of Dr. POMARET) killed the embryos in the blood. After the injections the embryos disappeared, but an occasional dead and granular embryo could be found in the night blood. The nocturnal periodicity characteristic of the living forms was found to occur with the dead embryos, thus showing that the rhythm is due to some physiological factor. The toxic action of the drug does not continue for more than a month, and must, therefore, affect solely the embryos in the blood and not the adults. The dose used was 0·12 cgm., and in one case dead embryos were observed after a single injection.

R. T. L.

MACFIE (J. W. S.) & CORSON (J. F.). **A New Species of Filarial Larva found in the Skin of Natives in the Gold Coast.**—*Ann. Trop. Med. & Parasit.* 1922. Dec. 30. Vol. 16. No. 4. pp. 465–471. With 2 text figs. [3 refs.]

In the skin of 22 out of 50 healthy adults between the ages of 25 and 45 years the authors found filarial larvae belonging to a new species, named by them *Agamofilaria streptocerca*. The larva can be distinguished at a glance from that of *Onchocerca volvulus* by its slender body, crook-shaped posterior end and blunt tail. It resembles closely the embryo of *Filaria perstans*, but this latter is shorter, relatively stouter, and the nerve ring, cell G, and the anal pore are situated more anteriorly. Sections of the skin showed the larvae lying in the tissue spaces of the cutis vera or corium, usually close to the rete mucosum, and in all cases there was a slight degree of cellular infiltration. The larva averages in length 215·5 μ ranging from 180–240 μ. In breadth it has a greatest diameter of about 3 μ. The clear area at the anterior end is about 4 μ long. The column of nuclei commences with a single row of ten or twelve nuclei, the first four being usually oval and the others somewhat quadrate. The tail is curved sharply into a crook and the column of nuclei at its extremity is a single row of rounded or oval nuclei. The posterior clear area is at the most about 1 μ long. The larvae do not occur in the blood.

R. T. L.

MACFIE (J. W. S.) & CORSON (J. F.). **Observations on** *Onchocerca volvulus.*—*Ann. Trop. Med. & Parasit.* 1922. Dec. 30. Vol. 16. No. 4. pp. 459–464. [4 refs.]

In small pieces of skin, somewhat larger than those used in skin-grafting by Reverdin's method, the authors have invariably found the larvae of *O. volvulus* in those affected with volvuloses. The larvae have been discovered in many cases in which no tumour could be palpated. An examination of 50 healthy men taken at random at Accra showed *O. volvulus* larvae in the skin of 17, *i.e.*, 34 per cent. In three natives examined post-mortem, larvae were found in the skin of widely separated areas, but none occurred in any of the mucous membranes or organs. No adult Onchocerca could be found in any part of the body. Feeding experiments with *Glossina palpalis* and

G. longipalpis and *Pediculus humanus corporis* were negative. As the larvae are particularly numerous in the skin at the base of the trunk it is suggested that *Phthirius pubis* might be regarded as a likely host.

R. T. L.

RICHARDS (W. G.). **Note on** *Dracunculus medinensis* (**Guinea-Worm**).—*Parasitology*. 1922. Dec. Vol. 14. No. 3 & 4. pp. 307–308

A number of men from an Imperial Service Regiment in the north joined the 26th Madras Light Cavalry at Bangalore in 1903. Some months later several of the men were admitted to hospital with guineaworm. An Indian Hospital Assistant advised that the men be fed with raw Indian sugar while starving and provided with only sufficient water to keep them on a sugar diet. Some determined men partook of a pound or more of sugar a day. This treatment was continued for a second day. In such cases the worm was usually out by the third day, it being easy to wind out the worm unruptured in all cases wherein the sugar diet was rigidly maintained. Sugar, taken as described, makes the patient almost unbearably thirsty and would appear to have caused a condition inimical to the guineaworm.

R. T. L.

i. OHBA (T.). [**On the Resistance of the Egg of the** *Ascaris lumbricoides*.]—*Taiwan Igakkai Zasshi* (*Jl. Med. Assoc. of Formosa*). 1923. Mar. No. 227. [In Japanese. English summary, pp. 2–3.]

ii. OHBA (Tatsunojo). [**On the Growth of the Eggs of** *Ascaris lumbricoides*.]—*Ibid.* May. No. 228. [In Japanese. English summary, pp. 1–2.]

iii. ——. [**On the Hatching Conditions and the Infectious Ability of the Eggs of** *Ascaris lumbricoides*.]—*Ibid.* No. 228. [In Japanese. English summary, pp. 3–4.]

i. The resistance of the embryonated egg of *A. lumbricoides* has been studied from the prophylactic point of view.

"In urine, or in the mixture of faeces and urine, the development of the egg is suspended, but it keeps alive; and if the environment is changed, division sets in.

"In perfect dryness the egg starts on a relatively quick development, but will die anyhow, either during growth or after the larva is completely formed.

"The egg containing an embryo will not be injured in such solutions as 20 per cent. salt water, 5 per cent. "Disinfectol," 0·1 per cent. corrosive sublimate, saturated lime water, 10 per cent. acetic acid, or 1 per cent. hydrochloric acid.

"Although the embryo in the shell will not be killed within 24 hours in Japanese soy, sake, 70 per cent. alcohol, 1 per cent. Lysol, 3 per cent. carbolic acid, or human urine, it will die sooner or later if kept in these liquids for any length of time.

"The embryo is very weak against heat and will die in 10 seconds at a temperature of 70° C., and 5 minutes at 60° C."

ii. The albuminous membrane covering the eggshell of *Ascaris lumbricoides* enhances the power of resistance of the egg and facilitates cohesion to foreign bodies, but it does not protect the embryo. In Formosa the best season of the year for development of the eggs is from the last ten days of May to the first ten days of September, when the embryo develops within ten days. The optimum temperature is about 30° C. Development occurs equally well in light or

darkness and exposure to direct sunlight does not destroy the embryos when the eggs are collected from faeces or from water, although development is retarded or the embryos are killed when the eggs are cultivated from the adult worms.

Lack of atmospheric oxygen suspends development which, however, is resumed on exposure to air. Cultivation in 2 per cent. formalin prevents putrefaction and stimulates the egg-cells, which, as a rule, develop more rapidly than in ordinary water; 10 per cent. or more of formalin has a lethal effect on the grown embryos.

iii. The eggs of *Ascaris lumbricoides* develop the greatest ability to infect experimental animals in from eight to ten days after the formation of the embryo, and those cultured in ordinary water are more successful than those in 2 per cent. formalin. The eggs may hatch spontaneously in the culture and the larvae live therein. Incubated for five or six hours at 38° C. in 0·2 per cent. HCl, 0·2 per cent. Na_2CO_3, artificial gastric juice or artificial intestinal juice the eggs do not hatch, but if left in these solutions for much longer periods hatching occurs. The rate of hatching is slow and indefinite when the direct mechanical action of the movement of the bowel is eliminated.

R. T. L.

MONSERRAT (C.) & AFRICA (C.). **Certain Developmental Stages of *Ascaris lumbricoides* Ova in the Liver Tissue.**—*Philippine Jl. Sci.* 1923. Apr. Vol. 22. No. 4. pp. 459–465. With 1 plate. [5 refs.]

In histological sections of the liver of a child, aged 3, who died of tubercular meningitis, the authors discovered *Ascaris lumbricoides* ova at four- and eight-celled stages of development embedded in tissue showing advanced inflammatory reaction. No adults were found in the stomach, intestine or bile ducts at the post-mortem.

R. T. L.

LEBEDEV (Dmitry). **Zur Frage ueber die morphologischen Variationen der Askarideneier.** [The Morphological Variations of Ascaris Ova.] —*Jahrbuch. f. Kinderheilk.* 1923. Mar. Vol. 101. Pt. 3–4. pp. 221–224.

The author describes briefly the varieties of Ascaris eggs which may be found in faeces—the spherical or large forms, the appearance of the inner shell, hyaline, faintly granular or striated, the presence or absence of the outer covering, and the character of the contents, granular in the spherical, fatty in the long forms—and questions whether the latter are merely unfertilized ova and also the significance of the other varieties, since all of them may be met with in the stool from a single patient. These questions, however, he makes no attempt to answer.

R. T. L.

LANE (Clayton). **The Mass Diagnosis of Ankylostome Infestation. (Part I.)**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1922. Nov. 16 & Dec. 21. Vol. 16. Nos. 5 & 6. pp. 274–313. With 1 plate & 6 figs. [29 refs.]

Mass diagnosis by microscopical recognition of ova in the stool has fallen into disrepute. The author believing that this is unjustified and

indeed lamentable has set himself to clarify the principles which underlie the techniques employed and to elucidate the details in individual methods upon which their success depends. For accurate comparisons it is essential that there should be complete disintegration of the stool sample, that an even distribution of ova should be ensured and the ovum content per cc. estimated as by Lane's Standardizing Count. For the concentration of ova various techniques use the following agencies: *straining, centrifuging, adhesiveness, surface tension, floatation* in solutions of higher specific gravity, and *solution* of fats by ether and of proteids by HCl. For accuracy of examination of concentrated ova the elimination of *camouflage* is most important, for it is a fruitful source of error as a result of the covering of ova.

In comparing concentrative technique it is noted that every technique has its limit of effective concentration. There is an immediate loss of efficiency if an attempt is made to exceed the degree of concentration by an increase in the amount of stool or a reduction of the area upon which concentration is effected. Comparisions of the time-saving efficiency of various techniques are only of value when based upon the time required to reach a negative diagnosis. Further, a separation of the area upon which the eggs are collected and the area on which they are examined detracts from accuracy and lengthens the time involved. The author discusses the concentrative techniques of HOWARD, his own levitation method, this method after double centrifuging, and after double centrifuging with inversion. The advantages of levitation are that it concentrates upon 2 sq. in. of slide the ova from 0·5 cc. of stool in vegetarians, but in non-vegetarians the limit of effective concentration is exceeded and the additional steps required render the technique complicated and time-occupying; moreover, the high meniscus readily spills, there is much cleaning to be done to avoid contamination with ova from previous cases, and the straining is, too often, slow and difficult. The method has now been abandoned by the author in favour of a method of Direct Centrifugal Floatation, for which he has devised a special apparatus to be used in the centrifuge buckets, for an account of which the reader must be referred to the original paper wherein the apparatus is clearly illustrated and its use described in detail. The result of a series of standardizing counts shows that the proportion of ova lost by floatation techniques and in particular by direct centrifugal floatation is small, and the conclusion is reached that the microscope can detect ova in every case in which they are present in the stool. Moreover, it would appear that the proper examination of 1 cc. of faeces suffices to detect ankylostome ova in all cases even if there be only a single female normally ovipositing in the intestine. The author maintains from his experiences that the direct centrifugal floatation method now advocated gives a greater and more reliable concentration than does any other known method. The collecting and examination areas on the slide are identical, so avoiding risk of loss of ova and of time. The apparatus devised is simple and reasonably fool-proof. The examination area is about half a square inch and the film scrutiny is now carried through in two minutes, on the average, by the author. [The paper contains also a detailed study and criticism of various other floatation techniques, and it has a theoretical interest, possibly as great as its practical value to those engaged in the active control of the disease in the field.]

R. T. L.

ACKERT (James E.), PAYNE (Florence King), STOLL (Norman R.) & AUGUSTINE (Donald L.). **Investigations on the Control of Hookworm Disease.**—*Amer. Jl. Hyg.* Baltimore. 1923. Jan. Vol. 3. No. 1. pp. 1–25. With 2 plates & 2 figs. [11 refs.]; pp. 26–34. [8 refs.]; pp. 46–58. [6 refs.]; pp. 59–70. [8 refs.]; Mar. Vol. 3. No. 2. pp. 127–136. With 2 charts. [5 refs.]; pp. 137–155 With 1 fig. [6 refs.]; pp. 156–179. With 4 figs. [15 refs.]

xii. **Studies on the Occurrence, Distribution and Morphology of** *Necator suillus*, **including Descriptions of the Other Species of** *Necator*. [ACKERT & PAYNE.]

In Trinidad 89·9 per cent. of the pigs are infested with a species of *Necator* similar to but, in the opinion of the authors, not identical with *Necator americanus*. This Necator they have named *N. suillus*, and in this communication they contrast it with other species of the genus *Necator*. The Trinidad pigs harbour about 76 worms each on an average. The infestation occurs practically throughout the island and in the heart of the most productive agricultural area.

Seven 26-day old pigs were found to be infested with *N. suillus* and are believed to have been infected prenatally. Several negative attempts to infect young pigs with larvae of *N. americanus* from man indicate that this parasite cannot mature in the pig although typical "ground-itch" occurs at the site of skin infection. Successful infection with *N. suillus* followed experimental infection through the mouth in two young pigs.

[These conclusions must be read in conjunction with earlier papers on the rôle of the pig in spreading human hookworm.]

xiii. **Observations on Conditions under which Hookworm Eggs and Larvae develop.** [ACKERT.]

With the aid of earthen flower-pots and soil previously heated, observations were made on the conditions under which hookworm eggs and larvae develop during the rainy season in Trinidad. Soil pollution, undisturbed, disappears in from 2 to 3 days by the action of rain and insects. The larvae of Drosophila and of other flies inhibit the production of infective larvae in human waste. Soil pollution in partly-shaded environments generally results in large numbers of infective larvae in from 5 days to 3 weeks. When soil pollution is covered with ½ inch to 2 inches of clay loam hookworm eggs hatch and the larvae reach the infective stage in considerable numbers. Hookworm eggs in soil pollution buried under 4 or 5½ inches of clay loam resulted in infective larvae which migrated to the upper part of the culture. The eggs remained viable for 58 days. Covering soil pollution with wood or charcoal ashes proved an ineffective control measure, as large numbers of infective larvae developed in stools wholly surrounded by ashes and the larvae lived deep in the cultures for more than three weeks.

xiv. **Field Experiments on Vertical Migration of Hookworm Larvae. (Preliminary Report.)** [PAYNE.]

A series of field experiments were made to test the ability of buried larvae of *N. americanus* to migrate from various depths to the surface. In faeces buried at depths up to 36 inches in sandy loam soil in Porto Rico larvae developed in large numbers and migrated to the surface. The migration occurred equally whether the larvae were buried after

reaching maturity or faeces were buried containing ova. The number of larvae which succeeded in reaching the surface decreased with the depth of burial. In clay, migration did not occur from a depth of 6 inches, but in red clay containing some sand migration occurred from a depth of 10 inches, but not to the same extent as in sandy loam. Observations upon a latrine pit showed that very few larvae could be recovered above the level of inoculation.

The results upon which these general conclusions are based are tabulated and detailed in the text.

xv. **An Effective Method of Counting the Hookworm Eggs in Feces.** [Stoll.]

The following simple procedure has been devised by the author while working in Porto Rico :—

"1. The feces in their container, as received at the laboratory (chamber or one ounce tin boxes), were balanced on the scales together with spatula (for the small samples toothpicks) and 3 grams weighed, by difference, into a large sized test tube or centrifuge tube graduated at 45 cc.

"2. Sodium hydroxide in decinormal solution was poured in to the 45 cc. mark.

"3. Ten small (3 mm.) glass beads were added, the tube was rubber-stoppered and the mixture vigorously shaken to secure a homogeneous suspension. This took a minute's time. When very compact feces were slow in comminuting, the tube was given a preliminary shaking and temporarily set aside. Reshaking then quickly produced an even suspension.

"4. With the material well mixed the tube was placed upright in a convenient holder (sputum jar), and immediately sampled with a pipette graduated at 0·15 cc.

"5. All of the 0·15 cc. sample was then transferred to the centre of a large (2 × 3) slide, and a 22 × 40 mm. No. 2 coverslip placed over it.

"6. With a mechanical stage and a low power of the microscope all of the eggs in the slide preparation were counted.

"7. The number of eggs found, multiplied by 100, represented the number of eggs per gram of feces used."

Evidence is brought forward to show that the egg count thus secured is a true index of the number of eggs present. The method applies with equal accuracy and readiness to the eggs of Ascaris, Trichuris and Schistosoma.

xvi. **Variation in Length of Life of Hookworm Larvae from the Stools of Different Individuals.** [Augustine.]

A series of experiments is tabulated which shows strikingly that the hookworm larvae obtained from cultures of the faeces of a number of individuals show differences both in the rate of dying out and in the final limits of their life. No adequate explanation of this can be advanced, nor could a definite correlation be discovered between the age, food-habits or occupation of the various individuals and the length of life of the larvae coming from them. The length of life of the larvae from a single female might be an inherited character. The character of the diet of the host may directly affect the length of life of the larvae. The excrement of persons ill or physically weak may contain certain excretions in such amounts as to alter the normal length of life of the larvae developing in them.

xvii. **A Quantitative Study defining a Point of Breakdown of Hookworm Eggs cultured in Feces, and its Association with Intense Acidity.** [STOLL.]

It is well known that the crop of larvae from cultures of hookworm eggs in faeces varies considerably and that the numbers are uniformly small in cultures made from the faeces from individuals subsisting upon a predominantly vegetarian diet. The author has studied the factors involved in producing this variability and has found that there is a wholesale destruction of hookworm embryos at an early stage in cultures of unmodified faeces. The lethal factor at work apparently prevented the emergence of the embryo from the egg shells. The author puts forth detailed evidence that this fact is, or is associated with, intense acidity, which is mitigated by the inter-mixing of charcoal, sand and humus soil.

xviii. **On the Relation between the Number of Eggs found in Human Feces and the Number of Hookworms in the Host.** [STOLL.]

From an intensive study of ten cases of hookworm the total number of hookworm eggs in the faeces has been computed for from one to five days and compared with worm counts on the patients after treatment. The cases ranged in egg output from 187,000 to 5,059,420 per day. The worm count ranged from 37 to 1,163 *Necator americanus*; of the total 4,704 worms expelled 51 per cent. were females. The average daily egg output per female worm, based on all cases, was approximately 9,000. The ratio of the count per gram of excrement varied from 44 eggs per gram per female worm on formed faeces, to 25 on mushy stools and 12 on diarrhoeic stools. The consistency of the data obtained was such as to recommend the use of a dilution-egg-counting method to determine the intensity of infections of hookworm patients. The author describes his method in detail.

R. T. L.

SMILLIE (Wilson G.). **Studies on Hookworm Infection in Brazil, 1918–1920. Second Paper.**—*Monographs of the Rockefeller Institute for Medical Research.* 1922. May 12. No. 17. 73 pp. With 15 charts in text. [6 refs.]

At the Institute of Hygiene of São Paulo, the author has had special facilities for the study of certain problems regarding the technique of diagnosis and method of treatment of hookworm disease. The conclusions reached are somewhat at variance with popular conceptions though in accord with theoretical knowledge of the life-history of the parasite. The method of study was that followed by the Malaya Board in Java: In a typical community all the inhabitants are registered, their stools examined and their haemoglobin tested. To a group of about 30 persons of different ages, sex, family and occupation, etc., sufficient chenopodium is given to remove 98 to 99 per cent. of the hookworms they harbour. The worms passed are counted and classified and the following data regarding each patient are carefully noted:—name, race, sex, age, occupation, length of residence on the plantation, haemoglobin, spleen index by palpation, previous worm treatment; also the results of the preliminary microscopical examination of stools, mode of treatment, symptoms during treatment, number

of evacuations, number of worms, which are identified. On such complete detail the following conclusions have been reached :—

Distribution of hookworm disease in relation to age and sex.—The disease is primarily one of young adults, chiefly of young men, whom it attacks most severely during the productive period of life. The most effective work in combating hookworm disease is that directed towards these individuals. Old people of over 50 years of age should never concern the sanitarian, for they are seldom heavily infested, and are slowly but surely losing their worms, and their economic value to the community and to themselves is almost over. Children under 10 years of age are only lightly infested. Women are infested to a lesser degree than men, and their infection rate diminishes after the marriageable age, for they then cease to work regularly in the fields.

Hookworm disease in children is nevertheless of great importance. One half of the children in age group 5-9 years had less than 11 worms each and three-quarters had less than 51 each. Charts show that infection gradually and progressively increases in the child with age and is much more widely distributed among children in the older age groups. It appears that when the children reach the age of about 9 some factor enters their lives which greatly increases the degree and distribution of the disease—this is shown to be the period at which the child normally begins work in the fields. The slow increase of infection in children who do not work in the fields is incidental and does them little harm. Those who work in the fields are invariably heavily infected and have the disease. The author is of opinion that in Brazil it is undesirable to treat children under 5 years at all. Between 5 and 8 years a small dose may be given to remove Ascaris and other intestinal worms, but not a full dose for hookworm, for children of 8 years or less are particularly susceptible, and almost all the fatalities have occurred in children below the age of 9.

Hookworm disease is due to direct contact with humid earth.—It is clearly shown by charts and statistics that under Brazilian conditions the disease is occupational in those who work in polluted soil and that contamination of food and drinking water is negligible. The author concludes that we must qualify the generalization that hookworm abounds in all people in tropical and sub-tropical climes, for it is largely limited to soil workers.

Influence of the use of shoes on infection.—Shoes in rural Brazil are a serious economic problem, for a very poorly made pair costs two or three weeks' wages. In the wet season these gather up the sticky mud until each foot weighs from 5 to 6 pounds, and prove, therefore, a great inconvenience. Adults rarely and children never use them in field work, yet the field labourers who work barefooted side by side with men who wore shoes had an average of ten times as many worms as their shod companions and the effect was clearly shown in their haemoglobin index.

Hookworm infection is slowly acquired and slowly lost.—Mass infections are not acquired in a week or a month but over a period of years.

The haemoglobin index in relation to the number of hookworms harboured, when estimated with the Dare method, shows wide individual variations and is not a good index of the worms in an individual, but it is one of the best and earliest indices we have of the amount of injury being done in a given case. An average infection of 25 hookworms is not sufficient to reduce the index in the least, even in children of from 5 to 9 years of age. In heavy infections of 700 in children and the aged, the average haemoglobin is more than 20 points below normal.

Young adults are much more resistant; even 700 hookworms cause a decline of only 10 points.

The influence of nutrition on hookworm disease.—In the breaking down of resistance, one of the most important of the many associated causes is poor and insufficient food, and the author is convinced that hookworm oedema is closely related to war or starvation oedema and that it is clinically impossible to distinguish them.

Distribution of hookworm species in Brazil.—Where there has been extensive immigration of field labourers from Southern Europe or Japan into Brazil, there has been a corresponding increase in the number of *A. duodenale.* The prevailing hookworm throughout Brazil is *N. americanus,* and natives living two or three miles from immigrants and not in contact with them are very slightly infected with Ancylostoma.

Value of the routine microscopical examination of stools in field treatment is briefly discussed as a result of the investigation of 131 additional cases. The author believes that with a slight modification of technique (viz., the re-examination of all field workers between 8 and 50 years of age whom the microscope has reported as negative) the microscope will be found to be an accurate and valuable aid in the campaign treatment of hookworm disease, but it cannot be expected to diagnose accurately cases harbouring 10 or fewer hookworms. The presence of 10 or less worms do not cause sufficient injury to warrant the inconvenience and discomfort of two full treatments.

The efficiency of the undivided dose of chenopodium in field treatment has been investigated as a result of a fortunate misdirection, and it is shown that the 1·5 cc. undivided dose of chenopodium without a preliminary purge is a very unsatisfactory method. A tabulated comparison of the effect of the divided and undivided 1·5 cc. dose shows a lowering in the effectiveness of the drug by more than 25 per cent.

R. T. L.

PESSOA (Samuel B.). **Pesquizas sobre a uncinariose no Brasil.** [Researches on Hookworm in Brazil.]—*Ann. Paulist. Med. e Cirurg.* 1922. May–Dec. Year 10. Vol. 13. Nos. 5–12. pp. 132–165. [4 refs.]

Hookworm is very prevalent in Brazil, some districts having a percentage of over 90. The Necator was found to be more than 50 times as frequent as Ancylostoma. The material being so abundant, the following researches were carried out :—

1. The value of a routine examination of the faeces for diagnosis in the first place, and for determining whether a cure has been effected in the second. It is shown that many cases are missed. Thus, 21 persons, 11 adults and 10 children, who had been called negative after microscopical examination for ova, were given a dose of oil of chenopodium; 9 of the 11 adults and 6 of the children passed hookworms as a result.

2. The efficacy of two treatments with oil of chenopodium. In a large majority of cases this was very satisfactory. 1·5 cc. was given in three doses, repeated 10 days later. In a few with heavy infection and marked anaemia a third treatment is recommended.

3. The value of betanaphthol as an anthelmintic. The dosage of this varied according to age—3 gm. in divided doses to children between 5 and 10 years, 6 gm. to adults. The drug was administered in gelatine capsules on three successive days. It was found to be very effectual but not quite so good as oil of chenopodium, and the cost was greater.

4. The best method of giving oil of chenopodium, whether as a single dose or in divided doses, whether preceded or not by a saline purgative the evening before. The results obtained were somewhat peculiar. If a preliminary purge was given a single dose of 2 cc. was found to be more effectual and less toxic than 1·5 cc. in divided doses. If the preliminary purge was omitted the reverse obtained—2 cc. followed by a purge in two hours proved less effectual than 1·5 cc. in two parts at two-hour intervals, similarly followed by an aperient.

H. Harold Scott.

SWEET (W. C.). **The Australian Hookworm Campaign.**—*Health.* Melbourne. 1923. June. Vol. 1. No. 6. pp. 158–161. With 1 map in text. [1 ref.]

On October 1, 1919, a campaign estimated to cost £100,000 in five years, was begun against hookworm in Australia. Field units working under the direction of a central office at Brisbane have now surveyed the continent of Australia and Papua and New Guinea. The results are tabulated thus :—

	Number of Persons examined.	Number of Persons infected with Hookworms.	Percentage infected.
Endemic Areas :—			
Queensland	130,833	14,067	10·7
New South Wales	13,000	765	5·9
Western Australia	810	303	37·4
Northern Territory ..	806	148	18·4
Total	145,449	15,283	10·5
Non-endemic Areas :—			
Queensland	32,116	389	1·2
New South Wales	8,298	5	0·06
Tasmania	2,209	2	0·09
Victoria	2,497	0	0·0
South Australia	3,281	0	0·0
Western Australia	2,036	5	0·2
Northern Territory ..	80	0	0·0
Total	50,517	401	0·8
Special Investigations :—			
Papua	17,905	10,601	59·2
New Guinea	28,234	20,951	74·2
Endemic Coal Mines, Queensland ; Ipswich, Burrum, & Mount Mulligan Fields	1,341	517	38·5
Hospitals for the Insane, Queensland	3,000	499	16·6
Total	50,480	32,568	64·5
Grand Total of Areas completed up to December 31, 1922	246,446	48,252	19·6

On the basis of the above information a scheme for the permanent control of hookworm has been devised by Dr. SAWYER (*Med. Jl. Australia.* 1922. Feb. 11). The heavily infected parts of the coast were to receive yearly intensive attention; the more lightly infected parts a bi-yearly or tri-yearly intensive campaign with a check on the hookworm index by a survey of the school children in other years. Special problems, *e.g.*, those of infected mining areas, were to have special methods devised as need arose. In New Guinea the natives were to be treated *en masse* without previous examination. A table is also given showing the improvement in the hookworm index as compared with that found at the commencement of the campaign.

R. T. L.

STEKHOVEN, Jr. (J. H. Schuurmans). **De Bestrijding der Anchylostomiasis.** [The Combating of Ankylostomiasis.]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1923. Vol. 63. No. 3. pp. 392–405.

The author gives a scheme, following well-known lines, for a hookworm campaign in Java. A preliminary investigation showed that *Necator* was far more prevalent than *Ancylostoma*; *A. ceylanicum* was not met with. In infections with Ancylostoma there is generally an excess of the male worms, in Necator generally females are found in greater numbers, but the author considers it possible that many of the small Necator males are lost in counting.

W. J. Bais.

HUNT (Daniel) & JOHNSON (A. L.). **Hookworm Studies in American Samoa.**—*U.S. Nav. Med. Bull.* 1923. June. Vol. 18. No. 6. pp. 685–688.

In 1908 ROSSITER reported that hookworm prevailed throughout the Samoan Islands. Between 1908 and 1921 the annual sanitary reports show that 1,066 cases were treated for hookworm. From one of these over 3,000 worms were recovered and there were several cases with 200 or more worms. The authors have examined the stools of 1,200 natives from all parts of the islands: 87·6 per cent. harboured intestinal parasites, 59·6 per cent. showed Ascaris, 58·8 per cent. had Trichuris, while hookworm occurred in from 8 to 78 per cent., according to the soil and general sanitary conditions.

Of 1,000 hookworms recovered from 50 cases, 780 were females and 220 males—all of the species *Necator americanus*. Fifty pigs from different localities gave 66 per cent. with hookworm, but the species could not be identified. It never occurred in man, nor did the authors ever find *Necator americanus* in the pig. In a study of 100 cases of hookworm infection treated with thymol 14 per cent. remained positive. A similar number treated with oil of chenopodium gave six persistent infections, while only one out of 100 who received carbon tetrachloride remained positive. In another group whose stools were negative 17 per cent. passed adult hookworms after a single dose of carbon tetrachloride. The worms varied in number from 1 to 17. In the case in which 17 were recovered, 11 were females and 6 males.

Reinfection occurred within six months in 24 per cent. of the group treated with chenopodium oil.

In American Samoa severe symptoms have only been observed in the presence of intercurrent diseases.

R. T. L.

SEKI-ENSEI. **The Anthelmintic Effect of Carbon Tetrachloride ($C Cl_4$) in Anchylostomiasis.**—*Taiwan Igakkai Zasshi* (*Jl. Med. Assoc. of Formosa*). 1923. May. No. 228. [In Japanese. English summary, pp. 6–7.]

Carbon tetrachloride is not only cheaper, but is also superior to Nematol in its action on hookworm, although chemically impure samples may contain carbon disulphide and give rise to symptoms of poisoning. The author's conclusions are based upon the treatment of over 200 ankylostome patients with 4 millilitres, preceded and followed by a purge of magnesium sulphate.

R. T. L.

EGUCHI (Suyewo). [**Studies on Ankylostoma. On the Invasion and Fate of the Larvae of the Ankylostoma into the Tissue of Heterogenous Animal.**]—*Aichi Igakkai Zasshi* (*Jl. of Aichi Med. Soc.*). 1922. Nov. Vol. 29. No. 6. [Summarized in *Japan Med. World.* Tokyo. 1923. Apr. 15. Vol. 3. No. 4. p. 79.]

The encysted infective larvae of the human and canine ankylostomes invade the skin of various heterogenous animals, *e.g.*, rabbit, guinea-pig, rat, mouse, domesticated fowl, frog, fish, etc., irrespective of the supposed environmental conditions which might favour the invasion. The invading larvae lie wedged in the subcutaneous tissues or in the lung and die, but no trace of the defensive mechanism could be detected.

R. T. L.

GORDON (R. M.). **A Further Note on the Occurrence of Ancylostomes resembling** *Necator americanus* **amongst Domestic Pigs in Amazonas.**—*Ann. Trop. Med. & Parasit.* 1923. July 12. Vol. 17. No. 2. pp. 289–298. With 2 figs. [4 refs.]

In view of the work of ACKERT and PAYNE on the *Necator* found in pigs in Trinidad, which they consider a new species, *N. suillus* [see above], the author has again studied in detail his material from the Amazon. He concludes that (*a*) length cannot be taken as a distinguishing character. (*b*) The buccal capsule is proportionately greater in the Necator from the pig, whereas ACKERT and PAYNE report the reverse. (*c*) No constant differences can be noted in the dorsal curve of the anterior part of the body. (*d*) There are marked variations in the dorsal tooth and the ventral and lateral lancets of both worms. (*e*) The length of the dorsal rays does not agree with the findings in the Amazonas material. (*f*) There is no proportionate differences in the size of the body space. (*g*) The shape and proportions of the bursae in the two worms appear to vary with the approximation of the two halves of the bursa. (*h*) The union of the lateral and dorso-lateral papillae occurred in both forms, but was not constant in either. (*i*) The length and shape of the spicules is not regarded as a reliable point of distinction. (*j*) In size the ova are almost identical. Attempts to infect pigs in England have resulted in the occurrence of Necator-like ova in the faeces, but no adults could be found at post-mortem. This evidence is not sufficiently definite to refute the negative results obtained by ACKERT and PAYNE.

R. T. L.

DE LA PAZ (D.). **On the Anthelminthic Property of** *Quisqualis indica.*—*Trans. 4th Congress Far Eastern Assoc. of Trop. Med.* 1921. Vol. 2. pp. 255–256.

TAVERA has claimed that the seed of *Quisqualis indica*, which grows wild in the Philippines, is a powerful anthelminthic remedy and its efficacy is vouched for by other physicians, although no actual results have been published. Experiments by the author on the ascarids of the dog *in vitro* and *in vivo* did not give any satisfactory confirmatory results.

R. T. L.

JOYEUX (Ch.). **Diagnostic et traitement des vers intestinaux les plus communs.**—*Rev. Prat. Malad. des Pays chauds.* Paris. 1923. Feb. pp. 35–49.

This paper is an extract from an article "Vers intestinaux" in the "Traité de Medecine," Paris, now in the Press. It is a useful summary of our knowledge of the subject, but naturally contains little that is new.

R. T. L.

DIAMANTIS. [**La teoria dell' infezione perineale da** "*Schistosomum haematobium*" **nell' uomo e conseguenze pratiche.**]—*Bull. Soc. Internat. de Méd. du Caire.* 1922. [Summarized in *Ann. Med. Nav. e Colon.* 1923. Jan.–Feb. Year 29. Vol. 1. No. 1–2. pp. 83–84.] [See this *Bulletin*, Vol. 20, p. 624.]

FILIPPINI (Azeglio). **Il ciclo dell' infestione da ascaridi e da ossiuri.**—*Policlinico.* Sez. Prat. 1923. Sept. 24. Vol. 30. No. 39. pp. 1256–1258. [11 refs.]

MALARIA.

SPENCER (H. A.). **Malaria in the Transvaal.**—*Jl. Trop. Med. & Hyg.* 1923. Oct. 1. Vol. 26. No. 19. pp. 297–305. With 1 chart.

Spencer amplifies experiences already described [this *Bulletin*, Vol. 20, p. 291]. An unduly wet season in the Transvaal is a malarially healthy one, anopheline eggs, larvae and pupae being washed away by the rush of water. Apart from an acquired tolerance, of the existence of which he is convinced, he has met a number of persons whom mosquitoes will not bite, and who do not acquire malaria, among them men who, to their annoyance, went right through the trying South-West African Campaign without the respite of even a day in hospital, an annoyance not mitigated, and not controlled, when it was suggested that they should submit to a direct injection of malarial blood to settle the question of their actual immunity. As the season proceeds tertian gives place to subtertian malaria, a condition apparently not looked upon as synonymous with infection by *Plasmodium falciparum*. Symptoms held characteristic of subtertian malaria are: jaundice with vomiting, the vomited matter having a smell considered characteristic of the malarial toxin; hypochondriac pains attributed to stasis at the two colonic flexures; precordial and other pains, photophobia, bronchial catarrh. Quinine in the interests of the child is strongly urged in pregnancy. The dose of quinine advised for an adult man is ten grains three times a day till the fall of temperature, and thereafter twice daily for four days. This quantity is held sufficient to cure tertian malaria, reappearances being looked upon as reinfections [see this *Bulletin*, Vol. 18, p. 335]. Organic arsenic, as soamin or cacodylate of soda, given intramuscularly to avoid rapid elimination, is held deadly to the malarial parasites.

Clayton Lane.

SOROMENHO (L.). **Epidemiology of Malaria and Blackwater Fever in Portuguese East Africa between 1901-1920.**—*Med. Jl. S. Africa.* 1923. Mar. Vol. 18. No. 8. pp. 201–206.

An attempt to estimate the epidemiology of malaria by hospital statistics based on a diagnosis mainly clinical, without knowledge of the country's population, cannot, as Soromenho insists, be accurate, but may be useful. The mosquitoes implicated are *Anopheles costalis*, *A. funestus*, *A. paludis*, *A. pharoensis*, and the species of malaria parasites at Lourenço Marques are *Plasmodium falciparum* and *P. vivax* in the proportion of four or five to one. The statistics of the eight established hospitals indicate a general decline in malarial morbidity during the last twenty years, but that this is not a necessary indication of mortality is shown, as pointed out, by a reported morbidity in whites ten times greater than that of any other race, while the corresponding mortality is less than half. The curve of blackwater fever is, in general, parallel to that of malaria, with a mortality in whites of 25 and in negroes of 83 per cent.

C. C.

WALRAVENS (P.). **Index endémique du paludisme à Elisabethville.**—*Ann. Soc. Belge de Méd. Trop.* Brussels. 1923. May. Vol. 3. No. 1. pp. 5–15. With 1 map.

At the end of the rains, March, 1922, bloods of children of African soldiers gave a parasitic index of 50 in thin smears, increased to 75 when thick smears were also examined. Presumably in each case one slide was searched. This double technique was also adopted for 707 children examined in September, 1922, at the end, that is, of the dry season. Of 527 African children then examined the parasitic and splenic indices were both 45, the soldiers' children giving a parasitic index of 61. Of 180 European children, who had received quinine, only 2 showed parasites and 3 palpable spleens. It is interesting to correlate with VELDEE's paper (see below) the fact that although 247 of the African children had palpable spleens and 235 showed parasites by the technique used (although the totals, that is of the parasitic and splenic indices, were almost indentical, and one would seem to be in this locality as valuable an indication of the general malarial incidence as the other), yet there were 111 children who had palpable spleens without detected parasites, and 99 in whom parasites were found but the spleen could not be felt. Combining the splenic and parasitic indices, there was evidence of malaria in 346 out of 527 persons, giving a rate of practically 66 per cent. Using the splenic index qualitatively, the projection of the apex of the spleen one finger's breadth below the costal margin is the unit. The total of finger breadths or units divided by the number of cases examined gave the figure of this qualitative index. It varied in the different camps surrounding Elizabethville from 1·59 to 2·56. Of the 240 children in whom malarial parasites were detected 6 harboured *Plasmodium falciparum*, 233 *P. vivax* and 1 *P. malariae*. The work in prospect contemplates the determination of the actual mosquito acting as definitive host, so that antilarval work may be concentrated upon its breeding-places. It is recommended that all children should take quinine from September to April inclusive, and felt that the discipline enforced in the camps suffices to insure its regular administration.

C. L.

VAN DEN BRANDEN (F.) & VAN HOOF (L.). **Index de paludisme et essai de prophylaxie quinique de la Malaria, à Léopoldville.**—*Ann. Soc. Belge de Méd. Trop.* Brussels. 1923. May. Vol. 3. No. 1. pp. 37–44. [3 refs.]

Among 421 native children examined in the hot weather by a thin and a thick smear, percentage of infection of 86 was established for children under 2, of 72 from 2–8, of 70·5 from 8–12 and of 50·6 above 12 years of age. The splenic index for the same periods registered 75, 91, 73, 40. The species of parasite did not vary proportionately with age or sex, the quartan parasite infecting 7·9 and the subtertian 92·1 per cent. Combining parasitic and splenic indices 92·2 per cent. of children showed evidence of infection. Tests showed further that those who had, certainly with incomplete regularity, received quinine once a week for a year, had considerably less infection at the end than at the beginning of the period. They had also, it must be added, received anthelmintic treatment. The improvement is in excess of that which the increase in age would have effected.

C. L.

LEGER (Marcel) & NOGUE (M.). **Le paludisme chez les Noirs adultes de l'Ouest-Africain. Etude parasitologique et clinique.**—*Bull. Soc. Path. Exot.* 1923. Apr. 11. Vol. 16. No. 4. pp. 281–293. [26 refs.]

A consideration of immunity treated parasitologically by Leger and clinically by Nogue. Of 303 adults—healthy, or if in hospital picked without reference to malaria—examined in the malaria season by a single thin smear, as the context indicates, 47·5 per cent. contained parasites in the blood. Of 142 examined in the healthy season the percentage was 7. In each case 80 per cent. of the infection were with *Plasmodium falciparum*, the rest with *P. malariae*. In the unhealthy season the percentage of infection of children under 2 was 64, while in adults over 20 further age brought no further decrease. It is suggested that the relative immunity of adults is due in part to the fact that they sleep covered from scalp to sole and anoint themselves with noisome fats, and partly to a schizolytic power present in the serum at the end of a paroxysm, which power must be assumed to be reinforced by subsequent infections. The outstanding feature of the communication is, however, the persistence of parasites in the peripheral blood, evidence, strictly speaking, of tolerance rather than immunity, a condition which, as Leger notes, MANSON insisted upon as the essential factor in these cases. In Nogue's experience the local adult negroes have fever rarely, and when they do it is of short duration and spontaneous cure, whereas in children the clinical aspect is the accepted one. In them the temperature did not reach 37·5° C. (99·5° F.) unless there were malarial infection. He cites cases suggesting that men acquire a tolerance to strains existing in their own country which is not evident when they are infected elsewhere. Regarding latency CRAIG alone is quoted, but many instances are constantly reported in this *Bulletin*.

C. L.

DELBREIL. **Notes sur le paludisme à Kaolack.** [Senegal.]—*Bull. Soc. Path. Exot.* 1923. Apr. 11. Vol. 16. No. 4. pp. 272–275.

Take a splenic index of 100 in children of 5 years and under, with the usual clinical concomitants, in a spot which is practically an island surrounded by marsh lands ; add uncovered wells and masses of trees rich in hollows ideal for larval breeding, and a population which sees little effect from quinine except the induction of blackwater fever, and you have a pretty recipe for the hygienist. Clinical manifestations in adults are uncommon. The type of blackwater fever is mild. A prophylactic dose of not less than 0·4 gm. of quinine for an adult and injection of 0·6 gm. of quinoform for a child of 3 months are advised.

C. L.

PALESTINE. **Proceedings of the Sixth Meeting of the Antimalarial Advisory Commission, 30th November, 1922.** [HERON (G. W.), Director of Health, President.] [MS. received from the Colonial Office.]

The Joint Distribution Committee of American Funds for War Sufferers has financed and placed under the Palestine Department of Health a complete Antimalarial Research Laboratory, while the Rockefeller Foundation has provided an Antimalarial Survey Section.

Research shows that *Chara foetida* and mosquito larvae amiably cohabit, and divides the Anopheles of Palestine into four groups: (*a*) The strictly rural house-haters, *A. hyrcanus*, *A. algeriensis* and probably *A. mauritianus*. (*b*) The rural house-haunters, of great malarial importance, *A. elutus*, *A. sergenti*, *A. superpictus*, *A. multicolor*. (*c*) The urban malaria carrier, *A. bifurcatus*. (*d*) *A. pharoensis*, very rare, possibly absent. Cyprinodon as a larviphage is considered very valuable. A parasitic survey in Beisan recalls irresistibly the humours of Aesop. In each village a confiding victim was induced to surrender a blood film, and became the first of a snowball of apostles who insured a full day's work for the unit. In July the splenic index among 529 persons was 46, the parasitic index among 663 was 1·9; the actuals being *Plasmodium vivax* 8, *P. falciparum* 3, *P. malariae* 2. In October the spleen rate was 46·7, and the parasite rate, in 80 children, 18, the actuals being *P. vivax* 6, *P. falciparum* 9. The control of irrigation and the institution of other surveys are planned.

C. L.

MAPLESTONE (P. A.). **Malaria in Australia.**—*Ann. Trop. Med. & Parasit.* 1923. July 12. Vol. 17. No. 2. pp. 213–229. With 1 map in text. [41 refs.]

A useful survey of the "incomplete and unreliable records" of malaria in Australia. In the northern regions the striking feature is a series of malarial outbreaks of short duration, the beginning of each traceable to a fresh introduction of infection, and the dying out not reasonably explicable, it is held, by scarcity of man or mosquito. The insect implicated has not been traced. Investigations on temperature and humidity on GILL's lines [this *Bulletin*, Vol. 18, p. 328] are urged.

C. L.

RASHINA (M.). [**A Survey of the Activities of the Malaria Stations.**]—*Hygiene & Epidemiology.* Moscow. 1922. No. 2. pp. 74–78. [In Russian.]

JUKOV (N.), MARZINOWSKY (V.) & SUTCHKOVA (O.). [**Malaria in the Shatur Peat Hags and the Campaign against it.**]—47 pp. 1923. Moscow. [In Russian.]

To combat the recent intense spread of malaria [this *Bulletin*, Vol. 20, p. 557] the Moscow Tropical Institute has initiated 32 Malaria Stations. At the Sochi Station on the Black Sea Coast the parasitic index, presumably established by a thin film, was 82·1 in adults and 100 in children, the splenic index varying from 46·4 to 90. Subtertian malaria constituted 31 per cent. of these in August, 1921, and 42·2 per cent. in August, 1922. After measures of drainage, petrolage, and quinine administration, continued for so long as the inadequate allotted funds permitted, the percentage of infection fell in one year from 90 to 20. In certain hill regions the percentage of subtertian malaria rose from 31 to 42·2 in a year. In the Saratov Station 65 per cent. of the population was infected, 80·6 per cent. of these with subtertian malaria. In the Central Russian peat hags the percentage of infection varied from 26·3 to 100, while in Children's Homes in Moscow *P. vivax* infected 35 to 46·3 per cent. In the Central Russian peat hags and swamps (Shatur), abounding in *A. maculipennis*, the malarial incidence of 1918 was 0; for 1919, 84; for 1920, 405; for 1921, 1,130; during the first 5 months of 1922, 1,760. Immigrant labourers, it is held, working

from May to July, have introduced malaria here, and now act as distributors of the infection throughout Russia. Two-thirds of the working population here were examined, 26·3 were infected, mostly with benign tertian malaria, and half of these harboured gametocytes.*

C. L.

JAARVERSLAG DER MALARIACOMMISSIE VOOR NOORD-HOLLAND OVER 1922. (**Uitgebracht aan den Minister van Arbeid, Handel en Nijverheid.**) [ALDERSHOFF (H.), Chairman. KORTEWEG, Secretary.]—Reprinted from *Verslagen en Mededeelingen Betreffende de Volksgezondheid.* 1923. Mar. 26 pp. With 1 chart. [23 refs.]

The third Report of this Commission [see this *Bulletin*, Vol. 19, pp. 282 and 855] states that during 1922 the first larva of *Anopheles bifurcatus* was found in North Holland on April 13, and the first male, indicating the maturation of the new brood, on May 27. The last male was found on October 10, and the last ripe eggs in September, two months earlier than in the previous year. Sprinkled upon water in a thin layer paraffin killed pupae in two hours, while some larvae were still alive after 48. Nevertheless, even if these were removed to clean water they all died, paraffin having, as examination showed, reached their finest air tubes. For the imagines the use of 3 per cent. lysol continued to give satisfaction. Infection among them was evident from September to March, with a maximum incidence of about six per cent. in November.

Regarding human infection, of 6,215 slides examined 2,762 contained plasmodia. The percentage of malarial cases in three selected medical practices was 6·4, 8·8 and 4, as against 8, 8·3 and 10 in 1921 and 16, (?) and 9 in 1920. Euphysol-quinine and ethyl-hydrocupreine were tried but did not prove to be advances upon quinine itself. Screening has proved a practical measure. The output of published work by the Commission has been considerable.

C. L.

DE BUEN (Sadí). **La campaña profiláctica contra el paludismo en la provincia de Cáceres (1922). Informe general.**—*Arch. Inst. Nac. Hygiene de Alfonso XIII.* 1923. Aug. Vol. 2. No. 2. pp. 97–128. With 6 charts. [3 refs.]

In the Spanish Province of Cáceres, adjoining Portugal, on the Tagus, antimalarial work has been carried on for another year, the number of towns involved being 99 as against 59 in the year previous, the sick 3,595 as against 1,890, the smears examined 4,265 as against 2,050, and the number found infected 2,083 as against 847. Taking Vera as an example, of 2,153 smears 888 were positive, comprising 453 tertian, 204 quartan, 153 subtertian, 70 unclassed, and 8 mixed. Again, spleen and parasite rates were simultaneously investigated in 1,668 persons. Of these 1,261 had no palpable spleen yet parasites were detected in 514 of them ; in 273 it projected one finger's breadth, with detected infection in 151 ; in 117 it reached the umbilicus, with detected infection in 65 ; where it was still larger the figures were respectively 17 and 2. Over 41 kgm. of quinine in various forms has been distributed. *Gambusia affinis* has been acclimatized, and all demands for its distribution met.

C. L.

* From summaries by Mr. C. A. HOARE.

MAXCY (Kenneth F.). **The Distribution of Malaria in the United States as indicated by Mortality Reports.**—*Public Health Rep.* 1923. May 25. Vol. 38. No. 21. pp. 1125–1138. With 7 figs.

The distribution and importance of malaria as revealed by mortality statistics is the basis of this study. Eliminating counties in which this incidence is low, on the grounds that a few imported cases may vitiate all conclusions, malaria in the United States is mainly confined to the coastal plain, bounded on the east by the Piedmont and mountain regions and on the west by the arid plains of Oklahoma and Texas, but extends far inland along the broad, flat Mississippi Valley. It is six times commoner in rural than in urban areas, and its distribution is focal. While the northern border of the malaria belt is steadily retreating southwards, its intensity in the three Valley States, Mississippi, Louisiana and Arkansas, increased definitely in 1921, the last year for which figures are available.

C. L.

MAXCY (K. F.) & ZIEGLER (M. V.). **The Malaria Problem of South-east Missouri.**—*Public Health Rep.* 1923. Feb. 9. Vol. 38. No. 6. pp. 233–250. With 1 map in text. [3 refs.]

The malaria incidence here considered is based upon a "history index" collected by Ziegler during a house to house visitation in an area consisting of three parts: swampy and but partly cleared forest; a new settlement; an old and permanent one situated on a ridge. The rates of attack per cent. per annum were for the three respective areas 15·1, 6·7, 2·8. For reasons given part of this incidence is ascribable to the local topography with its different facility for anopheline breeding; part to the differing mosquito-proofness of the houses, no screening of doors or windows sufficing to make a log hut mosquito-tight; partly to poverty with overcrowding, conditions under which a mosquito can, with minimum trouble, infect several members of a family. The shifting tenancy of the farmers does not make for effective screening, since they will neither fit it for themselves nor take proper care of it if the landlord do it for them. School and home education in malaria, and adequate medical attendance, are urged as essential preliminaries to its control.

C. L.

BRIGGS (Le Roy H.). **Malaria in San Francisco.**—*Jl. Amer. Med. Assoc.* 1923. Aug. 11. Vol. 81. No. 6. pp. 450–452. With 2 figs.

The means adopted for the differentiation of asexual forms of the tertian and subtertian parasites is that the latter being non-amoeboid lodges in the capillaries after attaining a quarter of its growth and so disappears from the peripheral blood, while the amoeboid tertian parasites squeeze through and so remain circulating; diagnositic criteria differing from those generally held. This point must be remembered in estimating the value of two local spot maps illustrating the places where 143 persons acquired their respective types of malaria.

C. L.

BASSETT-SMITH (Percy). **Naval Medical History of the War. Section of Tropical and Sub-Tropical Medicine. Part I. (i) Malaria and Blackwater Fever.**—*Jl. Roy. Nav. Med. Serv.* 1923. Apr. Vol. 9. No. 2. pp. 126-136. With 1 chart in text.

Adequate abstraction of a comparatively short and condensed paper dealing with the naval history of malaria in the war is impossible. Some few points are indicated. Returns from Simonstown show that by the time men reached the base the parasitic picture of those coming from Equatorial West Africa showed *Plasmodium falciparum* in every case, with or without *P. malariae*; from South-West Africa *P. vivax* and *P. falciparum* about equally divided; from East Africa and Tanganyika a preponderance of *P. vivax*, practically every man being infected. Of cases which reached the Dreadnought Hospital, the infections, or at least the residual infections, in cases from the Persian Gulf were preponderatingly with *P. falciparum*; from the Mediterranean with any parasite varying according to the season; from North Russia and the Danube with *P. vivax*, which parasite seemed to be the most frequent cause of relapse at home and produced 32 autochthonous infections among naval forces in England. It was, however, the case that Naval Air Stations in the Mediterranean were the main sources of naval malaria. Three anomalous conditions occurred: "Pyrexia undoubtedly due to malaria" without parasites in the peripheral blood; parasites in the peripheral blood without symptoms; incidence of parasitic and clinical relapse while the individual was under full quinine and arsenic treatment. In naval experience the prophylactic use of quinine has been of undoubted value, even if only for the suppression or latency it induces during active service. In Malta the usual routine treatment, and that judged to be the most effective, was 10–12 injections of bihydrochloride of quinine, each of 15 gr.; followed by 15 gr. of the hydrochloride daily by mouth for 21 days. At the Cape subcutaneous injections resulted in a crop of the usual catastrophies.

C. L.

GIOSEFFI (Mauro). **Se e quando possa sorgere un sanatorio in regione malarica.**—*Riforma Med.* 1923. May 21. Vol. 39. No. 21. pp. 489–490.

High altitudes are unsuitable for certain tubercular cases; sea air benefits them. But in Italy the sea coast is malarious. Could a spot so eminently suitable, apart from malaria, for the erection of a sanitorium, as is the Island of Brioni on the eastern margin of the Adriatic, be so administered that tubercular persons there collected would not run the risk, grave for them, of the acquisition of malaria? The necessary preliminaries are sketched and include examination of all inhabitants of the island and expulsion of such as remain infected; antilarval measures of all kinds; thorough screening. It is pointed out that malaria-free Vienna children enter the Ospizio Marino of San Pelagio and there acquire infection, that congregation in dormitories conduces to the spread of infection, and that, to insure the three-kilometre radius from the sanitorium deemed necessary, antimalarial measures as strict as those mentioned should be applied to the facing Istrian coast. These considerations demand also the strict supervision of all inmates and the exclusion or expulsion of all found to be infected. The scheme is clearly a costly one, and its success would seem to depend on the assumption that all malaria can be detected in one examination by the diagnostic measures at present in vogue.

C. L.

WOENSDREGT (M.) & VAN DAM (C.). **Bloed- en parasietenbeeld bij den aanval van malaria tertiana.** [Result of Blood and Parasite-Counts during an Attack of Simple Tertian.]—*Nederl. Tijdschr. v. Geneesk.* 1923. May 12. 67th Year. 1st Half. No. 19. pp. 2002–2010. With 2 curves.

Blood- and parasite-counts were undertaken in four cases of benign tertian (two simple infections, and two double) acquired in Holland. Preparations were made every hour or half-hour beginning some hours before the expected attack, and continued until several hours afterwards. The leucocyte counts were made in the wet chambers of Bücker and Türck; the differential count was based on 300–500 leucocytes, with the use of SCHILLING's scheme. Beside this was noted the relative number of each type (young rings, older rings, full-grown with 1, 2–4, 5–10, 11–18 nuclei, complete segmentation, gametocytes) of parasite. During the observation the patients took no food (only water), except one who took milk.

One hour before the onset of the fever leucopenia commenced, the number of leucocytes reaching its minimum during the ascent of the fever. After the febrile attack the number of leucocytes became normal. Before and during the attack there was a relative increase of the leucocytes having horse-shoe shaped or segmented nuclei (Schilling) with decrease of lymphocytes and large mononuclears. At the end of the attack and afterwards the contrary is observed, leading to monocytosis. In one case of chronic malaria with atypical fever a synchronous increase of leucocytes having horse-shoe shaped nuclei and of large mononuclears was observed.

The schizogony of the parasites, lasting 6–8 hours, took place during the decrease of the number of leucocytes, and was finished before the height of the fever was reached. No signs were observed indicative of a retention in the internal organs of parasites in course of schizogony. Female gametocytes were much more numerous than male; between the numbers of both there seems to exist a constant relationship.

N. H. Swellengrebel.

KNOWLES (R.), ACTON (Hugh W.) & GUPTA (S. A. S. Biraj Mohan Das). **A Note upon Spleen Puncture Findings in Malaria.**—*Indian Med. Gaz.* 1923. May. Vol. 58. No. 5. pp. 211–213. [3 refs.]

In fifteen cases having enlarged hard malarial spleens, splenic puncture recovered few if any viable parasites, an occasional crescent, more frequently abundant haemozoin, and proved of no diagnostic value in malaria. No evidence of intrasplenic phagocytosis emerged. It is held needless to postulate an unknown relapse-producing body [this *Bulletin*, Vol. 20, p. 776] of which no evidence was or has been forthcoming, the matter being explicable by the varying proportion of parasites destroyed by the host. If 98 per cent. of each generation be destroyed cure without relapse is probably assured. If the proportion be only 95–96, numbers are kept below the fever threshold, aided by the brake-like action of gametocyte formation; but should for any reason the host's power of destruction be lessened, schizogony rapidly produces a febrile dose of merozoits.

C. L.

VELDEE (M. V.). **Spleen and Blood Examinations for Malaria. A Study of the Relative Merits of the Spleen and Blood Parasite Indices for determining Malaria Prevalence as found in Dunklin County, Mo.** —*Public Health Rep.* 1923. July 13. Vol. 38. No. 28. pp. 1574–1580. [5 refs.]

This investigation continues, checks and elaborates that of MAXCY and COOGLE [this *Bulletin*, Vol. 20, p. 551]. The same area was covered, but girls were examined as well as boys, and both spleen and blood were investigated in 880 children. Twenty-one were positive in both blood and spleen, 25 in blood only and 24 in spleen only; so that although 70 gave evidence of infection, in only 46 were parasites found, and in only 45 was the spleen palpable. Age from six upwards had no definite influence upon the indices, but it was pointed out that nearly all had taken quinine, in marked contrast to the conditions generally prevailing in India. "We may conclude that in this particular community, at least, the two indices have the same value in measuring malaria prevalence. The ease and rapidity of application of the spleen method are much in its favour."

C. L.

ROSENBURG (Albert). **Zur Differentialdiagnose der chirurgischen Abdominalerkrankungen und der Malaria tropica.** [Differential Diagnosis of Surgical Affections of the Abdomen and Malaria tropica.]—*Deut. Med. Woch.* 1923. June 22. Vol. 49. No. 25. pp. 811–814. [12 refs.]

In a case diagnosed as peritonitis, operation revealing no such condition, death occurred on the third day from collapse. At autopsy the capillaries were found filled with malaria parasites and pigment. In a second case, delay for further observation before laparotomy revealed, in one who was suffering from hypochondriac pain, malaria parasites in the blood, cure following quinine administration. Both had received salvarsan. The necessity, in obscure cases in Germany, of bearing malaria in mind is again urged. One assumes from the title that both cases were infected with *Plasmodium falciparum*, although this is only stated of the second.

C. L.

NEUMANN (Paul). **Zur Diagnose und Therapie der Malaria tropica in Deutschland.**—*Med. Klinik.* 1923. May 27. Vol. 19. No. 21. pp. 723–724. [15 refs.]

The general lack of appreciation of the presence of malaria in Germany is evidenced by yet three more cases. The first was a man who for nearly four years lay in, or attended, hospitals with severe headache, body-wide pain and shivering, was looked upon as a neurotic, had his nasal septum removed—without advantage—underwent a course of salvarsan, and after the fourth injection died. The first suspicion of malaria was a glimpse of brain capillaries blocked with pigment and parasites. In the second case also the diagnosis was post-lethal. In the third parasites were discovered in the blood during life and he recovered under quinine, the schizonts disappearing from the peripheral blood in four days. Because the crescents persisted for 14 days, quinine resistance is held established, a resistance considered to have been broken down by injection of 40 cc. of argoflavin.

C. L.

RIVET (Lucien). **Sur quelques cas de paludisme autochtone.**—*Presse Méd.* 1923. Sept. 22. Vol. 31. No. 76. pp. 805–806. With 2 charts in text. [2 refs.]

Two cases are reported from Pas-de-Calais, cousins occupying the same room, whose fevers ran identical courses, the one where she was infected, the other after her removal to Paris. In Paris *Plasmodium vivax* was detected. The other, under telephonic instructions from Paris, was quininized without microscopic examination, but the diagnosis of benign tertian malaria cannot, in her case also, be seriously questioned. Two possible sources of infection close at hand were traced, and *Anopheles bifurcatus* was particularly annoying at the place. Three more autochthonous cases are reported from Paris. In two the infection was with *P. vivax*, in the third also apparently so.

C. L.

CIGNOZZI (Oreste). **La splenomegalia malarica e le sue complicazioni.** —*Policlinico.* Sez. Chir. 1923. Feb. 15. Vol. 30. No. 2. pp. 57–68.

Cignozzi records 17 cases of malarial splenomegaly. One spontaneous and one traumatic rupture died without operation, and one splenic abscess died after operation. In all the other cases, including six of splenectomy, operation was undertaken and recovery followed. In the splenectomies the leucocytic count, at first a typical leucopenia, passed after two or three months into a condition of marked mononuclear increase, and after five or six months to a normal picture, and a predisposition to septic infection is held established. Splenectomy cannot be depended upon to prevent relapse, especially of subtertian malaria.

C. L.

i. MACRAE (Donald Mackenzie). **Observations on Benign Tertian Malaria: its Incidence, Sequelae, and Treatment. No. I.**—*S. African Med. Rec.* 1923. July 28. Vol. 21. No. 14. pp. 318–324.

ii. ——. **Observations on Benign Tertian Malaria: its Incidence, Sequelae, and Treatment. No. II.**—*Ibid.* Sept. 22. No. 18. pp. 424–426.

i. These notes, based upon 18 years' experience of the Bechuanaland Protectorate, stress the observation that malaria does not necessarily conform to type. The effects of cold, heat and moisture in producing infection or relapse are considered; while less orthodox concomitants of infection mentioned are bleedings, sore throat, supraorbital neuralgia and headache, lumbago, bronchitis, pneumonia, dysentery and facial oedema. ii. Deals with tropical neurasthenia.

C. L.

MIXSELL (Harold R.). **Malaria in a 3½ Year Old Boy.**—*Arch. of Pediatrics.* 1923. May. Vol. 40. No. 5. pp. 339–341.

A boy of 2½, a lifelong resident of New York State, had an "epileptiform convulsion," a condition recurring at long intervals during the next year. Daily attacks of a different character then supervened, the temperature rising to 104° F., with headache, abdominal pain, enlarged spleen, haemoglobin index 35, erythrocytes 2,400,000, and a double benign tertian infection, clearing up under 12 grains of quinine daily continued for two months.

C. L.

STEPHENS (J. W. W.). **Studies in the Treatment of Malaria.—XXXII. Summary of Studies I–XXXI.**—*Ann. Trop. Med. & Parasit.* 1923. Oct. 13. Vol. 17. No. 3. pp. 303–316. With 4 charts.

A positive parasitic diagnosis before beginning treatment, and thereafter a daily microscopic examination during treatment and for the subsequent 60 days of observation during which treatment absolutely ceased, form the basis of the long series of studies here summarized. About four-fiths of relapses in simple tertian malaria occur within 20 days of the cessation of treatment, 95 per cent. between 7 a.m. and 7 p.m., and 20 per cent. at 2 p.m. Using the same treatment, if 40 per cent. of relapses occur in cases treated during summer and autumn over 90 per cent. will occur in those treated during winter and spring. The maximum tolerated dose of quinine sulphate was 120 gr. on each of two consecutive days.

For the removal of *Plasmodium vivax* from the cutaneous blood, with concomitant relief of symptoms, the following suffice :—A solution of quinine sulphate orally in doses of 10 gr. on each of two consecutive days, although usually 15 gr. two or three times a day were given until this result was achieved ; intramuscular injection on each of two consecutive days of 15 gr. of quinine bihydrochloride in 2 cc. of water, or of 15–30 gr. of quinine alkaloid dissolved in 1 cc. of sesame oil ; one to six intravenous injections of 10–15 gr. of quinine bihydrochloride in ten times the quantity of normal saline ; a single intravenous injection of 0·9 gm. of arsenobillon ; a single intravenous injection of 0·2 gm. of luargol.

For *P. falciparum*, intravenous injections of quinine and arsenobillon, as above, proved useless, both trophozoits and gametocytes persisting.

For *P. malariae* arsenobillon was useless.

Other drugs tested without benefit were liquor arsenicalis, tartar emetic, collosal manganese, quitenin, quinotoxin, amylopsin and trypsin.

With a view to maintaining the cutaneous blood free from parasites and the patient free from symptoms while treatment continues, the investigation showed that when a given quantity of quinine was administered weekly, say 30, 60 or 90 gr. [2, 4 or 6 gm.] the results were better if half of it were given on each of two consecutive days than if one-sixth were given daily for six days. The best results were obtained from 90 gr. given in 15-gr. doses three times a day on two consecutive days, an equally good one following the administration of 15 gr. of quinine bihydrochloride intramuscularly on each of the first two days and thereafter 30 minims of liquor arsenicalis daily for three fortnightly periods, treatment being suspended for a week between each such period.

Freedom from relapse for 60 days after treatment ceased was best accomplished by one of two methods. The first, that just described as being the most satisfactory method of preventing relapse during treatment ; the second, novarsenobillon 0·9 gm. on days 1, 8 and 15, and quinine bihydrochloride intramuscularly on days 1, 2, 8, 9 and 16. Under quinine in doses of 30–45 gr. daily, crescents rarely persisted for more than three weeks ; controls were not used ; doses of 30 gr. on each of two consecutive days weekly for five weeks were not so successful.

C. L.

BAERMANN (G.). **Malaria und Malariabehandlung. (Abortivbehandlung.)**—*Muench. Med. Woch.* 1923. May 11. Vol. 70. No. 19. pp. 587–589; and May 18. Vol. 70. No. 20. pp. 637–640.

This very laborious investigation of over 1,100 cases, each examined once or twice daily mostly in thick drop preparations for 60 days, was begun in 1912 and carried out where reinfection could not be excluded. The results are unfortunately given in a form not easy to analyse, but they confirm the conclusions reached by others that intravenous quinine is of minor value in producing sterilization, whether combined or not with salvarsan.

	Percentage of relapses.				
	P. falciparum.		*P. vivax.*	*P. malariae.*	
	Schizonts.	Gametes.	Schizonts. Gametes.	Schizonts. Gametes.	Average.
Intravenous quinine ..	62	100	47	100	66
Intravenous salvarsan..	90	98	51	71	70
Intravenous quinine and salvarsan	65	82	46 [?]	43	59
Oral quinine, ½ gm. daily in 2 doses, for 2 months	60	—	25	20	50
As above for 4 months..	35	—	15	15	25

The percentage table reproduced is valuable, even though the actual figures are not given, but it hardly warrants the definite statement made that quinine alone in whatever form and dose it may be given will not cure subtertian malaria with crescents, or quartan malaria.

C. L.

LE DENTU (R.). **Au sujet du comprimé de quinine.**—*Bull. Soc. Path. Exot.* 1923. July 11. Vol. 16. No. 7. pp. 567–568. [4 refs.]

A woman, diagnosed as having subacute appendicitis, passed 17 unaltered tablets of quinine in 48 hours. She had taken two daily and six immediately previous to examination. Le Dentu forwarded specimens to the Society in support of his contention that their quality was not at fault. LEGER, however, points out that they are unsoluble in and unchanged in water, that they consist of the basic sulphate; so that confidence in tablets of the hydrochloride of good quality is unabated.

C. L.

NUÑEZ (M. F.). **The Treatment of Malaria.**—*Amer. Jl. Trop. Med.* Baltimore. 1923. July. Vol. 3. No. 4. pp. 269–287.

Postulating that the accepted death-rate from malaria generally is 2·89, in pernicious malaria 26·6 per cent., and that his own figures in 8,000 cases are 0·2 and 6 per cent. respectively, Nuñez details the treatment which, he holds, has produced this diminution in mortality. Although quinine is given pride of place as the all-recognized specific, yet the salvarsans are held to abort promptly acute attacks in all forms of malaria and to be specific in the tertian field. Colloid quinine in doses of 1 gr. (0·065 gm.) is held therapeutically equivalent to 15 gr. (1 gm.) of ordinary quinine salts, and to be non-toxic.

C. L.

BASS (C. C.). **The Standard Treatment for Malaria.**—*New York Med. Jl. & Med. Rec.* 1923. June 20. p. 740.

Bass deals here with supposed resistance to quinine, that is, with cases which under the Standard Treatment recommended by the U.S. National Malaria Commission [this *Bulletin*, Vol. 18, p. 97] have received during an acute attack 10 gr. of quinine sulphate by mouth three times a day for three days without the attack being cut short. During the last year only four such cases have come to his personal notice. In one there was coexistent typhoid; in two the quinine had not been given as prescribed; in the fourth the diagnosis had been made by the laboratory man on one doubtful parasite found in one of many blood examinations made. In this case, a woman, fever and chills continued for weeks and disappeared without a diagnosis being made. "It was not malaria."

C. L.

FIDAO (G.). **Au sujet de la communication du Dr. Nogue sur la posologie infantile de la quinine.**—*Bull. Soc. Path. Exot.* 1923. June 13. Vol. 16. No. 6. pp. 436–437. [1 ref.]

Fidao agrees with NOGUE [this *Bulletin*, Vol. 20, p. 301] that the dosage of quinine for infants is too small. He gives 0·08–0·1 gm. of formate of quinine daily per kilo of body-weight without ill-effect. In discussing the matter, LEGER points out that the Standard Treatment of the United States [this *Bulletin*, Vol. 18, p. 97] is 0·3 gm. for a child of under 1 year, but insists that neither Fidao nor BASS takes cognizance of an essential matter, the species of parasite concerned. For *Plasmodium vivax* readily disappears from the peripheral blood under quinine, but constantly relapses; whereas with *P. falciparum* the driving of the parasite from the peripheral blood is difficult, but a full course of quinine is likely to be followed by sterilization. Of *P. malariae* he is not, from his experience, able to speak with exactitude. Now that the facts pointed out by WENYON [this *Bulletin*, Vol. 19, p. 98] and by ACTON and his collaborators [Vol. 18, p. 335] have been accepted, or independently reached by LEGER (there is nothing in the paper to indicate which position is correct), it is to be expected that their recognition will be more rapidly diffused than has been the case hitherto.

C. L.

i. FLETCHER (William) & VISUVALINGAM (S. A.). **Intramuscular Injections of Quinine.**—*Trans. Malaya Branch Brit. Med. Assoc.* Session 1922–23. No. 11. pp. 10–22. [30 refs.]

ii. FLETCHER (William). **Rectal Injections of Quinine.**—*Jl. Trop. Med. & Hyg.* 1923. July 2. Vol. 26. No. 13. pp. 229–230. [5 refs.]

iii. NEWHAM (H. B.). **Administration of Quinine** *per rectum.* [Correspondence.]—*Ibid.* Aug 15. No. 16. p. 272.

The papers by Fletcher and Visuvalingam comprise two chapters of a book elsewhere reviewed which contains striking photographs omitted from the separate publications.

i. The encountering within a short period of three appalling mutilations following intramuscular injections of quinine lead to investigations of its therapeutic value. Urinary excretion indicates

that quinine is absorbed from muscles somewhat less rapidly and evenly than from the alimentary canal, but this excretion does not continue for longer after intramuscular than after oral administration, so that the former has no advantage in prolonging the period of action. The necrosis which inevitably follows an intramuscular injection may be catastrophic if sepsis occur or if large vessels or nerves be affected; so that the medical man should not throw the responsibility for its actual administration upon others, and should limit this to cases where there is inability to swallow or retain an oral dose.

ii. In five men given 30 gr. of quinine hydrochloride per rectum in 2–4 ounces of water there rapidly ensued severe pain, tenesmus, and passage of blood and mucus continuing for from 1 to 5 days, with in one case collapse. Diluted to 15 ounces with starch and opium solution the results were but little better. No quinine appeared in the urine.

iii. Newham draws attention to his long experience of quinine bihydrochloride dissolved in normal saline, rectally administered, with no symptoms comparable to those described by FLETCHER, and to evidence of its therapeutic value. He adds that from his experience quinine can be given per rectum with perfect safety and marked efficiency. One is compelled, it seems, to look beyond the quinine for the symptoms which attacked FLETCHER's cases.

C. L.

LEGER (M.) & BÉDIER (E.). **La quinine agit-elle sur les schizontes de *Pl. vivax* au stade intraglobulaire ?**—*Bull. Soc. Path. Exot.* 1923. June 13. Vol. 16. No. 6. pp. 433–435. [4 refs.]

In a relapse of tertian malaria occurring in one of the writers, quinine was taken for the first time sixteen hours after the initial rigor—3 gm. of the hydrochloride in two days. During that period the growth of parasites was arrested but they persisted in undiminished numbers in the peripheral blood. Nothing, it is concluded, is to be gained by giving quinine during fever.

C. L.

SINTON (J. A.). **The Treatment of Malaria by Quinine in Combination with Magnesium Sulphate and Alkali.**—*Indian Med. Gaz.* 1923. Sept. Vol. 58. No. 9. pp. 406–415. [21 refs.]

The theoretical considerations which lead up to Sinton's experiments [this *Bulletin*, Vol. 20, p. 300], their details and results are considered. For his acid mixture he now uses citric in place of sulphuric acid, since it ultimately tends to an alkaline reaction.

C. L.

FIORENTINI (Augusto). **La cinconina nella cura della malaria dei bambini.**—*Policlinico.* Sez. Prat. 1923. Aug. 6. Vol. 30. No. 32. pp. 1025–1031. [9 refs.]

Experience of the administration of cinchonine hydrochloride to 11 children aged from 3½ months to 12 years, and to one woman, leads to the conclusions that the drug is easy to administer and especially useful in tertian malaria. Its capacity for preventing relapses, particularly of subtertian malaria, is held as still uncertain.

C. L.

ESCOMEL (E.). **A propos du traitement du paludisme dans les vallées malariennes du Pérou.**—*Bull. Soc. Path. Exot.* 1923. May 9. Vol. 16. No. 5. pp. 308–313.

Diagnosis in these cases was made by drawing into a centrifuge tube nearly full of 2 per cent. glacial acetic acid 1–3 cc. of blood, centrifuging, washing with physiological serum, again centrifuging and staining with "argentoratum of Guimaud of the University of Strasburg." Treatment of pernicious attacks was by subcutaneous, of acute attacks by intravenous, injection of bihydrochloride of quinine, together with oral treatment.

C. L.

CASTAGNA (P.). [**Quinine Treatment of Pregnant Malarial Patients.**]—*Rivista di Ostetricia e Gynecologia Pratica.* 1923. June. p. 268. [Summarized in *Brit. Med. Jl.* 1923. Sept. 22. (Epitome of Current Medical Literature.) p. 40.]

In 37 pregnant women given quinine in doses of 0·25 to 0·5 gm. by mouth none gave anxiety. Of 20 given 0·5–1 gm. by injection two, in the 8th and 9th months with hyperpyrexia, miscarried; while abortion threatened in one at 3 months.

C. L.

PAIS (A.). **La radiothérapie employée comme excitant dans le traitement du paludisme. Sa fonction sociale.**—*Bull. Soc. Path. Exot.* 1923. Apr. 11. Vol. 16. No. 4. pp. 244–249.

An experience of 2,000 cases in six years carries for the writer complete conviction. He makes no attempt at destruction of parasites by the rays, but finds that their application in minute doses, possibly for a few seconds only, reduces fever, enlargement of the spleen and anaemia, and so improves the general health that in cases where quinine has become useless it now cures. Large doses are harmful, having the opposite effect, while that of small ones is held comparable to the benefit obtained from altitude, so that the shortness of the exposure required allows of his bringing daily many mountains to many Mohammeds.

C. L.

MANOUKHINE (I. I.). **Traitement du paludisme par les irradiations de la rate d'après la méthode de l'auteur.**—*Rev. Méd. et Hyg. Trop.* 1923. May–June. Vol. 15. No. 3. pp. 80–92. With 6 charts. [7 refs.]

Twenty-three cases of tertian malaria, 10 of quartan, 11 of subtertian, 4 of mixed tertian and subtertian, and 2 judged to be malaria although parasites could not be found, were, on the day before the expected access, submitted to X-rays for five minutes with a bulb of 8 hardness, the dose being 1H. Apparently quinine was withheld. Cure is claimed for all. Of 3 cases detailed one required 16 sittings, the second 9 and the third 12 before the temperature fell to normal.

C. L.

GUNN (J. A.) & MARSHALL (D. G.). **The Harmala Alkaloids in Malaria.** —Reprinted from *Proc. Roy. Soc. of Edinburgh.* Session 1919–20. Vol. 40. Part 2. (No. 15.) pp. 140–149. With 4 figs. [Received Sept., 1923.]

Peganum harmala, reported by HILTON-SIMPSON as being used internally by the Algerians for syphilis and externally for septic wounds, contains in its seeds two alkaloids, harmaline ($C_{13}H_{14}N_2O$) and harmine ($C_{13}H_{12}N_2O$), closely related chemically and pharmacologically, but the latter about half as toxic as the former, whose lethal dose for guinea-pigs is 0·1 gm. per kilo. Harmaline kills paramoecium in 20 minutes in a dilution of 1 in 20,000, and its minimum lethal dose would not hinder its exhibition in quantities which might reasonably be expected to produce this degree of concentration in the blood. Tested *in vitro* on *Trypanosoma lewisi,* a solution of 1 in 4,000 left a few of them apparently unscathed after 5½ hours. Even in a concentration of 1 in 1,000 some few were not rendered immobile. *In vivo* two rats injected with blood, derived from a confrère infected with surra, which had been incubated for an hour at 37° C. in a 1 in 3,000 harmaline solution, died as rapidly as did controls. In ten cases of benign tertian malaria and in one of malignant tertian in Peshawar, Punjab, India, this salt was given in doses of 2 gr. daily, increased to 2 gr. twice a day if tolerated. In five of the cases the temperature fell and parasites disappeared from the blood in from 3 to 6 days. In one more relapse followed apparent cure. In five the disease was not checked. In six the drug caused nausea and giddiness. Ready cure followed the administration of quinine in the cases where harmaline failed.

Marshall reports the effects of harmine, supplied by Professor Gunn, and exhibited in doses of 3 gr. daily. In acute cases it proved ineffectual. In three relapsing cases, one with benign, one with subtertian and one with both these infections, it seemed to act much better than did quinine in preventing relapses. No untoward symptoms are reported as having occurred after its administration. It is stated that both alkaloids could safely be given in much larger doses, but in view of the consideration that nausea and giddiness followed 2-gr. doses of harmaline, and that harmine in animals is half as toxic as harmaline, this conclusion will perhaps be accepted for both alkaloids with some caution.

C. L.

WAGNER-JAUREGG. **The Treatment of General Paresis by Inoculation of Malaria.**—*Jl. Nervous & Mental Dis.* 1922. May. Vol. 55. No. 5. pp. 369–375.

Dealing historically with the effects of intercurrent infections and injected toxins upon general paralysis of the insane, the paper has also direct bearing on inoculated malaria. In 200 transmissions, 37 in direct descent, the first one being an untreated autochthonous Vienna case of infection with *Plasmodium vivax* occurring in 1919, there has never appeared anything but *Plasmodium vivax.* The amount of blood injected to produce transmission has been 1–4 cc., and the route has been subcutaneous. Blood taken between attacks has been as effective as blood taken during them. In some cases no infection followed the

first injection, although a second proved effective. In a few cases even three or four injections failed to cause infection, so that certain persons appear immune, at least to inoculated malaria. After 10–12 febrile attacks, 1 gm. of quinine daily for 3 days, and thereafter 0·5 gm. for 14 days completely cured all cases, six weekly injections of neosalvarsan being, however, added.

C. L.

WEBER (H. H.). **Wat leert ons de kunstmatige overdraging van malaria?** [What does Artificial Transmission of Malaria teach us?]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1923. Vol. 63. No. 2. pp. 234–238. [3 refs.]

Weber gives an account of the results of MÜHLENS and KIRSCHBAUM [see this *Bulletin*, Vol. 20, p. 295] with therapeutical infection with malaria of sufferers from general paralysis of the insane. Apart from the facts mentioned in the summary referred to, the following items are interesting. Infection never succeeded with blood containing only gametocytes; thus nothing was seen speaking in favour of SCHAUDINN's "parthenogenesis." Quinine given to a donor before taking his blood did not render it harmless for the receiver, neither did a quinine solution 1 : 5,000 *in vitro* kill the parasites. These observations are against a direct influence of quinine on the plasmodia and in favour of MORGENROTH's views of the pharmacodynamic action of the drug [see this *Bulletin*, Vol. 13, p. 81].

W. J. Bais.

KIRSCHNER (L.). **Inoculation of Malaria in Cases of General Paralysis and Frequency of the Latter Disease in the Dutch East Indies.**—*Meded. Burgerlijk. Geneesk. Dienst in Nederl.-Indië.* 1923. Pt. 2. pp. 192–206. With 1 text fig. [31 refs.]

——. **Over de malaria enting bij Dementia paralytica en de frequentie dezer ziekte in Nederlandsch-Oost Indië.** [On the Infection with Malaria in General Paralysis of the Insane and the Frequency of this Disease in the Dutch East Indies.]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1923. Vol. 63. No. 2. pp. 303–323. With 1 fig. [28 refs.]

This paper deals largely with the historic details of the treatment of general paralysis of the insane by the induction of an acute attack of malaria, and with the valuable personal experiences of one who, under WAGNER VON JAUREGG, made the latter's first experimental injections [see above]. Clearly, if malaria cures general paralysis, this disease should be rare where malaria is rife, and those with asylum experience in India will probably agree that facts there fall in with this logical conclusion. For the Dutch East Indies Kirschner analyses the figures of four asylums. These are, however, so variable that one must conclude that the personal element has entered so largely into diagnosis that sound conclusions are not safely deducible.

C. L.

KIRSCHBAUM (Walter). **Methoden und Kautelen einer Malaria- Blut-Konservierung und -Versendung zur Behandlung der progressiven Paralyse nach Beobachtungen an Tertiana-Plasmodien in Vitro und an Impfversuchen.** [Methods and Precautions for the Preservation and Despatch of Malarial Blood for the Treatment of General Paralysis, after Observations on Tertian Parasites in Vitro and Inoculations.]—*Klin. Woch.* 1923. July 23. Vol. 2. No. 30. pp. 1404–1406. [9 refs.]

A number of interesting points emerge regarding *Plasmodium vivax*. After withdrawal of blood the parasite survives therein for 1 to 3 hours at 25° C., dies in about 3 hours at 45–50° C. and remains viable up to 26 hours at 37–39° C., in all cases the conclusion being based upon the effects produced by injecting the blood subcutaneously in quantities of 3–5 cc. into a paralytic. Dextrose increases its longevity. Transport in a thermos flask, or even in the waistcoat pocket, is a practical measure. After mixing *in vitro* quinine solution of a strength of 1 in 5,000 with an equal quantity of blood and keeping the mixture in the incubator for 5 to 24 hours, it remained infectious in every case. A mixture of 2 to 4 cc. of a 0·45 per cent. solution of neosalvarsan with 2 cc. of blood containing *P. vivax*, kept in the incubator for 3 and for 6 hours, was infective. In four cases kept for longer, up to 24 hours, this was not so. C. L.

SANDS (Joseph Evans). **A Review of an Early Paper on Malaria.**—*Ann. of Med. History.* 1923. Mar. Vol. 5. No. 1. pp. 77–79.

An article by Drs. J. Forsyth MEIGS, Edward RHOADS and William PEPPER on "The Morphological Changes in the Blood in Malarial Fever with Remarks on Treatment," appearing in *The Pennsylvania Hospital Reports*, v, i, (1868), shows that they frequently observed the malaria parasite in most parts of the body without realizing that they did so. "In the splenic pulp we satisfied ourselves of the existence of red blood globules in different stages, not only of disintegration, but also of advanced metamorphosis towards black pigment, and are therefore prepared to agree with FRERICHS [1854] that these different colours represent the various stages in the transformation of the red pigment of the blood into melanotic matter. We have occasionally seen tinged gelatinous particles as though there were a union between the colouring matter [that is the pigment] and some protein element." It is clear how nearly these American observers anticipated LAVERAN's discovery of 1880, missing it by that apparently little mental step which is the essential in such matters. C. L.

LAL (R. B.). **The "Aldehyde Test" in Malaria.**—*Indian Med. Gaz.* 1923. Aug. Vol. 58. No. 8. pp. 369–371. [10 refs.]

The "gel" formalin test, advised for kala azar, was tried in malarial cases in Lahore. Kala azar is unknown there, and none of these persons had evidence of present or previous cutaneous leishmaniasis. In some a certain opacity occurred, but in none was there solidification as judged by NAPIER's standards. C. L.

SALVIOLI (Gaetano). **Le sieroreazioni della sifilide nella malaria.**—*Gazz. d. Osped. e d. Clin.* 1923. Apr. 22. Vol. 44. No. 32. pp. 374–376. [16 refs.]

In a total of 101 malarial sera, 83 of them collected during an exacerbation, four syphilitic tests were compared: (1) The Bordet-Wassermann reaction; (2) the Sachs-Georgi reaction in isotonic sodium

chloride solution, making the reading after 3, 24 and 48 hours in the incubator; (3) the third modification of Meinike's reaction; (4) the Sachs-Georgi reaction in the incubator for three hours and at room temperature for one. His findings are that certain sera from persons with acute malaria give a weak Wassermann reaction, and he advises that in a malarial region the Sachs-Georgi or Meinike reactions should be substituted for, or at least added to, the Wassermann test as a check upon nonspecific reactions produced by the latter. C. L.

GARIN (Ch.) & AFFRE. **Étude du sang chez les paludéens.**—*Lyon Med.* 1923. Apr. 25. Vol. 132. No. 8. pp. 327–341. [28 refs.]

GARIN (Ch.). **Étude sur les éléments figurés du sang dans le paludisme.**—*Rev. Prat. Malad. des Pays chauds.* Paris. 1923. June. pp. 229–239. [20 refs.]

These papers are largely identical. An analysis of 4,000 cases of malaria observed at an altitude of 1,000 metres confirms work already accepted. Special tests, carefully executed, indicate that malaria actually increases somewhat the resistance of erythrocytes to haemolysis. In 272 cases the leucocytes during apyrexia averaged 5,347 per cmm., the access in 247 adding an average of 798 per cmm. A differential count of 462 cases during apyrexia showed polymorphs 59·2, eosinophils 3·1, large mononuclears 17, small mononuclears 12·7, lymphocytes 8; while in 525 the corresponding figures during paroxysm were 67·2, 1, 17·8, 10 and 4. Myelocytes indicate a grave anaemia. Published work on arterial pressure and serum reactions is critically considered, and these papers, particularly the first, will be consulted by those desiring a critical consideration of the present position and an indication of the directions in which advance may profitably be attempted. C. L.

i. ALFARO (Soto). **Algumas formas graves de paludismo visceral.**—*Amazonas Med.* Manáos. 1922. Year 4. Vol. 4. Nos. 13–16. pp. 148–152.

ii. MONTANARI (Manlio). **L'infezione malarica nella chirurgia.**—*Policlinico.* Sez. Prat. 1923. Aug. 20. Vol. 30. No. 34. pp. 1099–1100.

iii. OVAZZA (V. E.). **Influenza della malaria in chirurgia.**—*Ibid.* pp. 1100–1102.

iv. SPENCER (H. A.). **Malaria of the Middelvelt and Highvelt of the Transvaal.**—*Jl. Trop. Med. & Hyg.* 1923. Aug. 15. Vol. 26. No. 16. pp. 261–263.

v. SERGENT (Ét.) & CATANEI (A.). **Sur un cas d'anisocytose chez un paludéen.**—*Arch. Instituts Pasteur de l'Afrique du Nord.* 1922. Dec. Vol. 2. No. 4. pp. 478–479. With 1 chart.

vi. LEGER (Marcel) & BÉDIER (E.). **Index endémique du paludisme à Ouagadougou** [Upper Volta] **en saison sèche.**—*Bull. Soc. Path. Exot.* 1923. May 9. Vol. 16. No. 5. pp. 383–385. [10 refs.]

vii. LEGER & BÉDIER (E.). **Notes brèves sur l'index endémique du paludisme dans la Haute-Volta.**—*Ibid.* July 11. Vol. 16. No. 7. pp. 556–557.

viii. REITANI (Ugo). **Sopra un caso di polineurite malarica grave.**—*Policlinico.* Sez. Prat. 1923. Oct. 15. Vol. 30. No. 42. pp. 1350–1352. [22 refs.]

ix. WENYON (C. M.). **The Mode of Transmission of Malaria: A Hypothesis Advanced by Richard Pfeiffer in 1892.**—*Lancet.* 1923. July 14. p. 68. [1 ref.]

i. Of the nine cases here cited only two showed parasites in the blood, one a case of pseudo-angina pectoris, and one of coma. The others

(simulated malignant endocarditis, simulated mitral regurgitation, tachycardia, lobar pneumonia, acute and chronic enteritis, acute and chronic dysentery) were attributed to malaria either because attacks came on at a definite hour or because they yielded to quinine.

ii. A report of 38 cases in which a clinical diagnosis of post-operative malarial relapse is made.

iii. Instances are cited where traumatism, accidental or parturient, excited malarial relapse.

iv. Spencer here reiterates the reasons for his conviction that in the middle and high veldt malaria is a grave factor in public and individual health, and one which should not be ignored.

v. In a malarial Algerian child, aged 6 months, 210 erythrocytes were measured: 19 were of normal diameter, 134 of less, and 57 of more, than normal size, the extreme measurements being 2·5 and 12·7 μ.

vi. In the dry season, during March, malaria parasites were found in 21 of 46 children, or 46·6 per cent. *Plasmodium falciparum* accounted for 14, *P. malariae* for 7. *P. vivax* was absent.

vii. In May in the same place the parasitic index was at or near 100, the percentages of the various species being *Plasmodium falciparum* 83·6, *P. malariae* 14·9, *P. vivax* 1·5.

viii. Malaria parasites were not found. A Wassermann test could not be made.

ix. This paper has already received a short mention [this *Bulletin*, Vol. 20, p. 771]. Those interested in the history of medicine will appreciate Wenyon's reference to a conjecture which "appears to be one most logically argued, most accurately deduced, and nearest to the truth in the light of subsequent discoveries."*

C. L.

i. Aievoli (E.). **Iper-splenomegalia malarica e sue complicazioni.**—*Riforma Med.* 1923. Jan. 5. Vol. 39. No. 5. pp. 404–405.

ii. Banerjee (Haran Chandra). **A Case of Fever due to *B. coli* Infection Simulating Malaria.**—*Calcutta Med. Jl.* 1923. Apr. Vol. 17. No. 10. p. 171.

iii. Journal des Praticiens. 1923. Mar. 31. Vol. 37. No. 13. pp. 205–206. **Le paludisme autochtone en Lorraine.** [N. F.]

iv. Duba. **Rhumatisme polyarticulaire aigu d'origine paludéenne.** [Correspondence.]—*Ibid.* p. 208.

v. Kitaeff (F.) & Ioff (I.). **Ergänzung zur Frage "ueber Doppelinfektion u. Parthenogenesis."**—*Rev. Microbiol. & Epidemiol.* Saratov. 1922. Vol. 1. No. 3. pp. 292–293.

vi. Sträussler (Ernst) & Koskinas (Georg). **Ueber den Einfluss der Malariabehandlung der progressiven Paralyse auf den histologischen Prozess.**—*Wien. Med. Woch.* 1923. No. 17. pp. 783–787.

vii. Abbatucci (S. & C.). **La solution la plus approchée de l'extinction du Paludisme en Corse.**—*Bull. Soc. Path. Exot.* 1923. July 11. Vol. 16. No. 7. pp. 485–490.

viii. Cheinisse (L.). **La cinchonine dans le traitement du paludisme.**—*Presse Méd.* 1923. July 28. Vol. 31. No. 60. pp. 662–663. [11 refs.]

ix. Emily (J.). **A propos de la lutte antipaludique à Beyrouth.**—*Bull. Soc. Path. Exot.* 1923. July 11. Vol. 16. No. 7. pp. 481–483.

i. Seventeen cases of malarial spleens, excessively evident to palpation, fell into five surgical groups: ptosis with or without pedicular torsion; infarction and haemorrhage; hydatid; acute splenitis or peri-splenitis; traumatism.

ii. An autogenous vaccine caused rapid cure.

---

* Pfeiffer, R. (1892): Beiträge zur Protozoen-Forschung, I. Heft. Die Coccidien-Krankheit der Kaninchen, Berlin

iii. Two cases of microscopically established malaria, one caused by *P. falciparum*, occurring autochthonously in Lorraine indicate that the focus of infection, lighted during the war, still smoulders.

iv. A striking case in which swellings and gnawing pains of wrists, elbows and shoulders having a daily periodicity, persisting under salicylate of soda and salophene, disappeared rapidly under quinine. The blood was not examined.

v. A bald summary of conflicting opinions on "parthenogenesis" of malaria parasites.

vi. Histological examination of the central nervous system leads to the conclusion that malaria causes the lesions of general paralysis to become stationary. They cease to progress.

vii. The particular methods advised in this paper for Corsica, vexed by a multitude of counsellors, are gassing of the imagines, detailed destruction of breeding-places during the winter, and quininization.

viii. Taking as a text a case reported by FLETCHER & TRAVERS (*B.M.J.*, Apr. 14, 1923) in which quinine caused an exfoliative dermatitis without cure of the malaria, this consummation following rapidly when alkaloidal cinchonine was administered in capsules, Cheinisse points out the reasoned advocacy of this drug by Leonard ROGERS (1918) and ASCOLI (1919).

ix. LEGENDRE & LOUIS (*Bull. Soc. Path. Exot.*, 1923, p. 86) having found mosquitoes and malaria so rare in Beyrouth as to justify the termination of prophylactic measures, Emily, GOUZIEN and ABBATUCCI insist that the lack of malaria is directly due to those very measures, and point to the occurrence of serious cases just after the advice for discontinuation had been tendered.

C. L.

ARCE (Julian). **Ataque Pernicioso Hiperazoémico, causado por el** *Plasmodium Vivax.*—*Gac. Méd. Peruana.* 1923. Vol. 1. No. 3. pp. 57–60.

BERTRAND. **Contribution à l'étude du paludisme chronique dans ses manifestations nerveuses. Rôle du sympathique.**—*Bruxelles Méd.* 1923. July 12. Vol. 3. No. 37. pp. 856–860.

BOSE (Indubhushan). **Two Uncommon Cases of Malignant Tertian Infection.**—*Calcutta Med. Jl.* 1923. July. Vol. 18. No. 1. pp. 310–311.

CANTIERI (Collatino). **Sul probabile interessamento del fascio di conduzione atrio-ventricolare in alcune sindromi miocardiche da malaria.**—*Riforma Med.* 1923. Feb. 26. Vol. 39. No. 9. pp. 196–198.

VAN DONGEN (A.). **Malaria-typhus.**—*Nederl. Tijdschr. v. Geneesk.* 1923. Sept. 1. Year 67. 2nd Half. No. 9. p. 883.

MACHUTCHISON (G. B.). **Three Cases of Malaria.**—*Trans. Malaya Branch Brit. Med. Assoc.* Session 1922–23. No. 11. pp. 23–26.

REGNAULT (Félix). **Paludisme en Corse.**—*Rev. Méd. et Hyg. Trop.* 1923. May–June. Vol. 15. No. 3. pp. 92–93. [2 refs.]

YAKIMOFF (W. L.). **Sur la question du paludisme au Turkestan russe.**—*Bull. Soc. Path. Exot.* 1923. Apr. 11. Vol. 16. No. 4. pp. 243–244. [1 ref.]

TROPICAL OPHTHALMOLOGY.

NEWMAN (E. A. R.). **Berger's Stereoscopic Lenses for Ophthalmic Practice.**—*Indian Med. Gaz.* 1923. Mar. Vol. 58. No. 3. pp. 107–109. With 4 text figs.

Newman calls attention to the great increase in the efficiency of ophthalmic work if some form of binocular loupe is employed for the examination of the front of the eye, and advocates the use of the Berger loupe for the purpose, giving the address at which the instrument can be obtained and the price to be paid for it. The advice is truly excellent, but in the reviewer's experience, and he has given a full trial to many forms of apparatus for the study of the front of the eye during the last twenty years or more, there is no instrument to touch the Zeiss corneal loupe for clearness of definition and for general utility. Whilst on this subject, it is germane to mention the corneal microscope which the same firm has recently placed on the market, and which, when used in combination with the Gullstrand slit-lamp, is revolutionizing ophthalmic diagnosis. Full information on the subject of both these instruments can be obtained from Messrs. Martin & Tomkins, of 51, Margaret Street, London, W.1, who are the London agents for Messrs. Zeiss.

R. H. Elliot.

TALBOT. **Diffusion épidémique de la conjonctivite à gonocoque.**—*Ann. Méd. et Pharm. Colon.* Paris. 1922. Jan.–Feb.–Mar.–Apr. Vol. 20. No. 1. pp. 13–18.

Gonococcal conjunctivitis, as seen in Indo-China, may spread in families, in limited areas, or in whole villages during July, August and September owing to the higher temperature and greater atmospheric moisture favouring the virulence of the organisms at that time of year. Unfavourable conditions of body hygiene predispose to the degree of infection in individual cases. Fingers and other soiled objects carry the infection from case to case.

R. H. E.

NICOLLE (Charles), CONSEIL (E.) & CUÉNOD (A.). **Vaccination préventive contre la conjonctivite aiguë à bacille de Weeks. Son importance dans la lutte antitrachomateuse.**—*C.R. Acad. Sci.* 1923. Aug. 6, Vol. 177. No. 6. pp. 382–384.

The authors consider that preventive inoculation against Koch-Weeks conjunctivitis has not received proper consideration in Europe owing to the fact that the type of infection there is so relatively mild. On the other hand, in lands where trachoma is rife, Koch-Weeks infection plays such an important part that prophylactic measures against it are of great importance. Both subcutaneous and subconjunctival vaccinations were employed, and the patients were then subjected to the instillation into the conjunctival sac of fresh cultivations of the Koch-Weeks bacillus without any serious symptoms supervening; whilst a control case showed typical infection. To those of us who know the havoc wrought by mixed infections in trachomatous patients, these observations must seem to be of very great importance.

R. H. E.

TALBOT. **L'Index trachomateux en Annam.**—*Bull. Office Internat. d'Hyg. Publique.* 1923. Mar. Vol. 15. No. 3. pp. 339–345.

Talbot is nothing if not methodical. He has set himself the task of working out the index of trachoma in Annam as a preliminary to a campaign in the schools for the elimination of the disease, and has discovered that it is much more prevalent among the people who live scattered in small communities on the dunes along the seashore than amongst those who are massed on the richer deltas. This, which at first sight seems an anomaly, is, he considers, to be explained by the influence of the sand driven along the dunes by the sea breezes; the injuries inflicted on the cornea and conjunctiva by this agency pave the way for the diffusion of the virus of trachoma. A number of statistical tables are appended to the paper.

R. H. E.

BOUVIER (E.). **Le trachome dans la population rurale infantile du Nord-Annam.**—*Bull. Soc. Path. Exot.* 1923. May 9. Vol. 16. No. 5. p. 299.

In four cantons of North Annam Bouvier found trachoma in from 32 to 49 per cent. of all the children examined, and he is deeply impressed with the menace to vision constituted by this state of affairs.

R. H. E.

PACALIN (M. G.). **Réflexions pratiques sur le traitement médical et chirurgical de la conjonctivite granuleuse.**—*Arch. Méd. et Pharm. Milit.* 1922. Oct.–Nov.–Dec. Vol. 77. No. 4. pp. 453–475. With 1 fig. [3 refs.]

This is not a treatise on trachoma, but an effort to place the author's wide practical experience of the treatment of this disease at the disposal of his old brother officers who are practising in the tropics, many of whom have not had a training in ophthalmology. Both the medical and surgical aspects of the subject are dealt with in a readable form, and no claim is made for anything new or startling. It is well suited for those for whose sake it was written.

R. H. E.

PETIT (Paul J.). **Recherches sur le trachome en Tunisie. (1er mémoire.)**—*Ann. d'ocul.* 1921. Vol. 158. pp. 567–579.

The statistics given show the appalling frequency of trachoma in the schools of Tunis, as many as 90 and 96 per cent. of cases being found in various centres. At one of these, corneal scars were present in 14 per cent. of the children; in another in 29 per cent. and in another in over 59 per cent. As in other backward countries, the patients seemed little impressed with the seriousness of their condition and made comparatively little complaint; it was mainly the corneal complications that drove them to seek assistance. There were striking cases of immunity in the eyes of much-exposed subjects. Petit saw several cases of the so-called "gelatinous trachoma," described by STELLWAG and others, and so familiar to workers in the East; the lower lids were more affected than the upper. Trachoma is most commonly

transferred in Tunis from individual to individual, though other methods of propagation are possible. Systematic treatment of all the infected, combined with their isolation so far as is possible, affords there, as elsewhere, the best prospect for the eradication of the disease.

R. H. E.

CLARK (Taliaferro). **The Trachoma Problem in the State of Minnesota.** —*Public Health Rep.* 1923. Mar. 2. Vol. 38. No. 9. pp. 383–403.

Those who are interested in the prevention and cure of trachoma should read this paper carefully. It cannot fail to impress them with the very thorough manner in which the State of Minnesota is grappling with a problem of national importance.

R. H. E.

PARROT (L.). **La lutte contre le trachome en milieu indigène rural. (Projet d'organisation.)**—*Arch. Instituts Pasteur de l'Afrique du Nord.* 1921. Mar. Vol. 1. No. 1. pp. 116–123.

Parrot points out that civilization, by its tendency to enlarge the urban population at the expense of the rural districts, has increased the incidence of trachoma amongst the Algerians and other natives. He remarks that, owing to its inclination to relapse, treatment of the disease in peripatetic clinics is of little value, and he suggests that the campaign against trachoma should be conducted on similar lines to that against tuberculosis.

He recommends that an eye dispensary should be established in every centre in which the population reaches 500 or over ; this should be chiefly supported by voluntary contributions. The dispensary would deal with the detection, the notification, and the simple forms of treatment of the disease ; patients requiring operative treatment should be referred to the larger hospitals. Education of the community in ocular hygiene should be carried out by each centre.

R. H. E.

COLLIN (Léon). **Rapport sur le trachome à Madagascar.**—*Ann. de Méd. et de Pharm. Colon.* Paris. 1923. Jan.–Feb.–Mar.–Apr. Vol. 21. No. 1. pp. 52–60. [2 refs.]

Trachoma has been introduced into Madagascar by Indians, and is being widely and rapidly disseminated there as a result of the total absence of hygienic precautions in the island. It is spread by direct contact and by the intermediary of flies. Energetic measures are called for to arrest this very serious invasion.

R. H. E.

LI (T. M.). **Trachoma in China.**—*Nat. Med. Jl. China.* 1922. Mar. Vol. 8. No. 1. pp. 1–10.

This paper deserves the careful study of every medical man who practises in the many tropical countries where trachoma is rife. The reviewer can remember no better description of the clinical course of this disease in the whole of his reading. Every line of it seems packed with useful information, the result of a large clinical experience ; the result is that it is impossible to abstract it ; it should, on the contrary,

be read, underlined, and studied. Apart from the clinical description, a number of very interesting statements are made. It is estimated that from 15 to 20 per cent. of the population of South China suffer from trachoma, whilst in North China the figure rises to 50 per cent. or even higher. In the Peking Eye Clinic 65 per cent. of the cases come for trachoma or its complications. An examination of 1,475 persons in Peking showed that 58·3 per cent. of them were trachomatous. Li estimates that taking China as a whole one third of the people have the disease; that one in every hundred of the population is totally blind in both eyes from it, and another one per cent. in one eye. In addition, fully 10 per cent. of all those who have the disease have had their vision so reduced thereby that it is only with difficulty they can apply themselves to the most menial tasks of life. Trachoma, he says, is the greatest single cause of economic loss in China to-day. In forming this opinion he has come to the identical conclusion which the reviewer reached many years ago for India. Li blames the lack of personal hygiene for the spread of trachoma, and he especially indicts the indiscriminate use of common towels, basins, and various other household appliances. He says "We all know how general is the Chinese custom of using hot towels in restaurants and theatres and also while travelling by rail or steamer." He holds that direct contact with the lids by contaminated fingers or articles is necessary to produce infection. Tropical dust is a potent factor but only indirectly through its tendency to produce chronic conjunctivitis and so to pave the way for the attack of the trachoma germ. From his observation of children in Orphan Asylums he puts the incubation period of the disease at from 3 to 5 days. Trachoma may be fully developed in 2 or 3 weeks, or may progress slowly and insidiously and defy a positive diagnosis for a much longer period than this. He is strongly in favour of the energetic treatment of every doubtful case from the very first, believing as he does that early cases can be cured in a month or two, while late ones require six months to a year's treatment, and even then may recrudesce.

It is seldom that the reviewer has read a paper with which he can agree so heartily in every detail, or one which seems to him to be of so much value to the young medical man in the tropics. Once again he would urge every one of such to study this paper carefully.

R. H. E.

ABADIE (Ch.). **Nouvelle méthode de traitement des formes graves et invétérées de la conjonctivite granuleuse.**—*Rev. Prat. Malad. des Pays chauds.* Paris. 1923. Apr. pp. 134–142.

Abadie believes that a number of cases of trachoma resist the ordinary treatment (painting with silver nitrate, etc.) because the infectious element has made its way into the depth of the conjunctiva and especially into that part of it in the neighbourhood of the upper fornix. He accordingly rubs in a 1 in 500 solution of corrosive sublimate with a hard brush after making three or four longitudinal incisions into the conjunctiva at the fornix. To render this easy of performance, he everts the upper lid thoroughly with the aid of a special pair of forceps. If this treatment fails, he makes a number of galvano punctures into the everted conjunctiva of the fornix after thorough eversion of the lid. Each puncture is 1 centimetre in depth. By repeated reintroductions of the cautery he aims at making a row of four or five

subconjunctival burnt-out pits which he washes out with a 1 in 500 solution of perchloride of mercury. He asserts that there is no pain after the operation, and that the cure begins at once. The perchloride washing out is repeated at intervals for two or three weeks. Abadie claims wonderful successes as a result of this treatment, which he has demonstrated not only in his own clinic but also in Spain and in Northern Africa. BARRAQUEUR, MARQUEZ, ARMBRUSTER, and MORAX have testified to the excellent results from the Abadie treatment, of which they speak from practical experience and in very high terms.

R. H. E.

KAPUR (Devi Dass). **The Operative Treatment of Trachoma by Excision of the Fornix.**—*Indian Med. Gaz.* 1923. Apr. Vol. 58. No. 4. pp. 158–160.

The operation which Dr. Kapur advocates and which he has performed in a large number of cases, he learnt under Col. AINSWORTH at the Mayou Hospital, Lahore; it differs in some details from the methods usually described. The steps of the procedure and other pertinent matters are set forth clearly, and admirable results are claimed. The indications for the operation are: (1) The presence of large follicles in the fornices and on the palpebral conjunctiva, and (2) any involvement of the cornea; it must not be undertaken if the conjunctiva is extensively scarred or is becoming xerotic, or if acute intercurrent infections are present.

R. H. E.

DE MATTOS (Waldemar Belfort). **A cura da trichiasis e do entropion, pelo processo de Lagleyze.** [The Treatment of Trichiasis and Entropion by Lagleyze's Operation.]—*Bol. Soc. Med. e Cirurg. de S. Paulo.* Brazil. 1920 & 1921. Oct.–Feb. Vol. 3. 2nd Ser. Nos. 8–12. pp. 299–304. With 1 plate.

The procedure is described at length and illustrated by clear diagrams. Local anaesthesia is employed; it is claimed that the operation is very simple, rapid and neat; there is no mutilation of the lids; in fact it is an ideal method.

R. H. E.

BARTOLOTTA (E.). [**Che cosa intendo io per tracoma.**] [The Nature of Trachoma]—*Arch. Ital. Sci. Med. Colon.* Tripoli. 1922. Dec. Vol. 3. No. 12. pp. 316–318. [Summarized in *Ann. Méd. et de Pharm. Colon.* Paris. 1923. Jan.–Feb.–Mar.–Apr. Vol. 21. No. 1. pp. 97–98.]

Bartolotta would deny the specificity of all trachomatous manifestations. He does not believe that the granules are parasitic in origin. Such specificity as there is is to be attributed in his view to the anatomical constitution of the lids, and not to any specific activity of an invading organism. To the reviewer the idea in so extreme a form seems retrograde and likely, if adopted, to lead to a policy of stagnation from the point of view of investigation.

R. H. E.

VERWEY (A.). **A Case of Intra-Ocular Cysticercus Cellulosae.**—*Med. Jl. S. Africa.* 1923. May. Vol. 18. No. 10. pp. 250–252. With 3 text figs.

Cysticerci in man are either rare in South Africa or are seldom diagnosed there. In this case, though the possibility that it was a cestode tumour was taken into account, no positive evidence in support of such a view could be obtained, and a diagnosis of new growth was accordingly made; the eye was removed, and the cyst was found to be situated in the retina; the worm was believed to be dead; no other operation would have sufficed. Evidence is brought forward to show that cysticercus infection is not so rare in South Africa as has been thought. A recommendation is added that the complement-fixation test should be used in these cases.

R. H. E.

WRIGHT (R. E.). **Cysticercus of the Subconjunctival Tissues.**—*Indian Med. Gaz.* 1923. May. Vol. 58. No. 5. pp. 215–216. With 1 text fig.

Wright publishes the notes of this interesting case in which the cyst tore through the conjunctiva and "popped out" under accidental manipulation. Professor R. T. LEIPER diagnosed it as "a Cysticercus cellulosae, the hooks on the head of which were very abnormal." This is a rare condition in Madras. Wright states that the first case on record was by ELLIOT & INGRAM published in the *Indian Medical Gazette* for June, 1911. He can find no other records in the hospital, but has just met with another cyst of the same nature, of about the same size, and in the same situation (near the inner canthus). Of this he gives a rough drawing and promises a full report on a later occasion.

R. H. E.

WRIGHT (R. E.). **Optic Atrophy.**—*Brit. Med. Jl.* 1923. May 12. pp. 806–808.

Wright has been carrying on in Madras the admirable work on the study of optic atrophy commenced by KIRKPATRICK in the Government Ophthalmic Hospital. His communication should be read by all who study ophthalmology and especially by those of them who work in the tropics; it is thoughtful, orderly and systematic. The very helpful classification he gives obviously represents a great deal of careful observation, clear thinking and hard work. It is worthy of more than perusal, for it deserves to be thoroughly mastered by all who are interested in the subject. This paper will help materially to establish Wright's reputation for sound and useful work.

R. H. E.

FERNANDO (Antonio S.). **The Eye in Beri-Beri.**—*Amer. Jl. Ophthalm.* 1923. May. Ser. 3. Vol. 6. No. 5. pp. 385–388.

Fernando records the notes of three cases of eye symptoms in beri-beri treated in the Philippine General Hospital at Manila. He is of opinion that this disease is a much more common cause of defective vision in the Philippine Islands than has hitherto been supposed. The older children and some of the adults there suffer from defective

vision at night ; to this condition the term " matang-manok " (chicken-eye) is commonly applied. As the conditions which in other countries commonly give rise to night-blindness are rare in the Philippines, and as the condition of the patients is otherwise healthy, he believes these to be slight cases of beriberi with ophthalmic complications, and he desires to draw the attention of his fellow practitioners to the subject. The chief complaints in the patients he has studied have been : (1) that the vision is foggy ; (2) that the eyes are easily tired, especially at night ; (3) that there is some measure of night-blindness, and (4) that the patient is easily dazzled by bright lights. Of some of the better-known eye complications of beriberi he has comparatively little to say.

R. H. E.

MUKERJEE (S. K.). **Ocular Complications of Malaria.**—*Calcutta Med. Jl.* 1923. June. Vol. 17. No. 12. pp. 241–253. [9 refs.]

The writer gives an excellent summary of the more modern views on the ocular complications of malaria, supported by references to a number of the recent works on the subject. Perhaps of most interest in the paper are his remarks on pareses of the motor nerves of the eyes ; without actually endorsing these, the reviewer would recommend them to the attention of those who work in the tropics.

R. H. E.

CALHOUN (F. Phinizy). **Retrobulbar Neuritis of Malarial Origin.**—*Southern Med. Jl.* 1923. Feb. Vol. 16. No. 2. pp. 139–141. With 5 figs. [7 refs.]

Three cases of tertian malaria, negative to Wassermann's reaction, exhibited contracted visual fields, particularly for colours, one eye being predominantly affected, and a central scotoma the rule. Differentiation from quinine amblyopia rested on the history and on the absence of distension of the retinal veins. These cases cleared up entirely under 20 gr. of quinine bisulphate continued daily for about two months.

Clayton Lane.

FORSTER (Andrew E.). **An Experimental Study of the Pathogenesis of Quinin Amblyopia with Special Reference to Ethylhydrocuprein Hydrochlorid.**—*Amer. Jl. Ophthalm.* 1923. May. Ser. 3. Vol. 6. No. 5. pp. 376–380. [8 refs.]

In this posthumously published paper the work of other experimenters on the subject is first reviewed, showing that the toxic action of quinine is first manifested in the ganglion cells of the retina and is followed by degenerative change in the optic nerve. The writer's experiments on rabbits with quinine, with urea hydrochloride and with ethylhydrocuprein hydrochloride are next reported. The rabbit would appear to be a very unsuitable animal for all experiments of this nature, since only very slight retinal lesions were produced even when fatal doses were given. The moral would appear to be that future experimenters in this interesting field of work should select animals more suitable for their purpose.

R. H. E.

HAGEN (Sigurd). **Om oftalmologiens, saerlig staeroperationens utvikling i Norge.** [Cataract Extraction in Norway.]—*Norsk Magazin for Laegevidenskaben.* 1923. Vol. 84. No. 3. pp. 193–211. [13 refs.]

The principal feature of interest in this paper lies in the claim for a unique position taken up by the ophthalmologists of Norway, inasmuch as they use no bandages after extraction of a cataract. This technique was recommended by HJORT some 30 years ago, and with some modifications is still in use. The reviewer recalls the fact that the method was tried, but he believes soon abandoned, some decades ago in certain Indian hospitals. Whatever may be said of it in Norway, it is a quite unjustifiable method in the dusty and germ-laden tropics.

R. H. E.

MACGILLIVRAY (Angus). **Sub-Conjunctival Cataract Extraction.**—*Brit. Jl. Ophthm.* 1922. Aug. Vol. 6. pp. 351–360. [6 refs.]

The author found so much difficulty in performing an iridectomy under a conjunctival bridge that he has reverted to "the simple operation"—leaving the iris intact. In a few cases in which a preliminary iridectomy was done the operation was extremely easy. The advantages claimed for the method are: (1) that it is easy and rapid; (2) that it affords good protection from bacterial invasion; (3) that iris prolapse is prevented; (4) that the edges of the wound are brought into complete apposition, thus securing perfect healing of the scar. The reviewer doubts whether the method really prevents iris prolapse. In his own experience of the operation—and he does it almost always—the advantages are all that MacGillivray claims. An iridectomy can usually be performed at the time of the extraction, but the ideal method is to do a preliminary iridectomy, and a wide bridge extraction later. He would recommend this warmly to tropical ophthalmologists.

R. H. E.

KILLICK (Charles). **A Series of One Hundred Cases of Cataract removed under a Subconjunctival Bridge.**—*Brit. Jl. Ophthm.* 1923. July. Vol. 7. No. 7. pp. 320–327. [6 refs.]

Killick, in this posthumous paper, describes his technique for the removal of cataract under a subconjunctival bridge, and has much to say in favour of the method. He rightly admits that it demands a little more skill and experience than ordinary extraction, but does not believe that it leads to delay in healing, to haemorrhage into the anterior chamber, or to prolapse of the iris. The one contra-indication to it is a narrow palpebral fissure, as in such cases there is not room to make the bridge. The reviewer agrees with Killick in all these contentions and recommends his paper to the perusal of ophthalmic surgeons.

R. H. E.

ELSCHNIG. [**Extraction of Senile Cataract in the Capsule.**]—*Bericht der Deutsch. Ophthalm. Gesell.* Jena. 1922.

Those who cannot read Elschnig's interesting paper in the original should at least study BUTLER's excellent review of it in the *British Journal of Ophthalmology*, August, 1923, p. 383. He comments on the results of SMITH's "propaganda journey" through America as published by four well-known ophthalmologists, and in the light of these unfavourable reports he considers SMITH's operation to be unsuitable for adoption outside of India. He likewise speaks unfavourably of the Barraqueur operation. In the space at our disposal it is impossible to do more than direct the attention of ophthalmologists to this communication.

R. H. E.

VALOIS (G.) & LEMOINE (P.). **Remarques relatives au lavage du sac cristallinien au cours de l'opération de la cataracte. Reformation artificielle de la chambre antérieure.** [Lavage of the Capsule in Cataract Operations.]—*Ann. d'ocul.* 1923. Jan. Vol. 160. Year 86. pp. 28–34. [8 refs.]

The authors strongly advocate free lavage in the course of cataract extraction, and point out some of the many advantages of the method, which originated with McKeown, of Belfast, and was introduced into the Madras Ophthalmic Hospital over 21 years ago, with this difference, that whereas McKeown saved it for immature cataracts, the reviewer, impressed by the possibilities of the method, made it the routine procedure of that hospital, which it has continued to be ever since. It has always seemed strange that so valuable an addition to our cataract technique has been so little adopted by the profession at large. It is all that Valois and Lemoine claim for it and much more besides, and deserves a full trial at the hands of all who work in the tropics.

R. H. E.

SHANKER (Hari). **Vitreous Escape in Intracapsular Extraction of Cataract in Prominent Eye-Balls or Fat Patients.**—*Indian Med. Gaz.* 1923 June. Vol. 58. No. 6. p. 251.

The author advocates that, in the above classes of cases, firm manual pressure should be made backwards on the eyeball by a method which he describes. Great advantages are claimed in detail from the use of the method. The original paper should be consulted by those who are interested in the subject.

R. H. E.

GANGULY (S. K.). **Complications after some Cataract Operations.**—*Calcutta Med. Jl.* 1922. Dec. Vol. 17. No. 6. pp. 249–261.

This paper gives details of all the failures and of some of the successes met with in a total of 812 cataract and after-cataract operations. Such a record cannot fail to be both valuable and instructive, and should be read in the original by all who are interested in cataract operations in tropical countries. The reviewer welcomes it the more heartily because it is an evidence that Indian surgeons are taking careful notes of their cases, are analyzing them and are learning the lessons that such material can teach. In his early days in India there was a most regrettable tendency, shared by some who ought to have known better, to think and act as if a careful compilation of statistics was impossible in that land of great opportunities. Such papers as this are a sign of the dawn of better things.

R. H. E.

ROLLET & BUSSY. **La cataracte noire.** [Black Cataract.]—*Arch. d'Ophtalm.* 1921. Feb. Vol. 38. pp. 65–82. [59 refs.]

Black cataract is so common in eastern practice that any paper dealing with it must be of interest to tropical workers. It affects the elderly and develops very slowly; it is characterized by an increase in the density of the lens fibres, which show no granulations, no globules, no destructive process, and no pigmentation. The black coloration is due to the presence of oxidized tyrosin in the interior of the lens. The authors consider that the prognosis is worse than that in cases of ordinary cataract. With this the reviewer agrees, but he has had so many highly satisfactory results from operations on this form of cataract that he would certainly recommend ophthalmologists in the East to take the risk and to operate freely despite the fact that their figures for this form of lens extraction will be worse than those of uncomplicated cases. After all it is the patient that matters, and not the statistics.

R. H. E.

LISTER (A. E. J.). **A Preliminary Note on an Investigation as to the Actual Weight of the Cataractous Lens, together with some Clinical Notes on Cataract.**—*Indian Med. Gaz.* 1920. Mar. Vol. 55. pp. 84–87.

Lister weighed 80 cataractous lenses extracted in their capsules in India, the average age of the patients being 56. The most striking feature of the series lay in the wide variations above and below the average, the heaviest lens weighing more than three times the lightest, and the average weight being 212·43 mgm.; the swollen pearly-sectored cataracts were the heaviest and the over-ripe shrunken cataracts the lightest. The Indian cataracts would on the average appear to be heavier than the European. This is to be accounted for by the greater percentage of swollen cataracts met with in Indian practice.

R. H. E.

ARANA (Federico). **Cataratas Eléctricas.**—*Arch. de Oftal., Hisp.-Amer.* 1918. June. Vol. 18. No. 210. pp. 278–280.

A man received an electrical shock at a voltage of 20,000, and sustained severe damage to the arm, loin and neck. Four months later the vision began to fail very rapidly, and PACHECO LUNA, of Guatemala, found mature cataracts in both eyes and operated successfully.

R. H. E.

'IRAQ. **Annual Administration Report of the 'Iraq Health Services for the Year 1921.** [GRAHAM (J. D.), Lieut.-Col., I.M.S., Inspector-General of Health Services.]—112 pp. 1923. Baghdad: Govt. Press. [Price not stated.]

Eighty per cent. of the population of Baghdad have trachoma, 12 per cent. are blind in one eye, and 3 per cent. in both eyes; yet the leading men of the city, while much interested in the preventive work undertaken, show no inclination to help financially. Steps are being taken gradually to eliminate the hakim, but the process is slow and will take a long time. The three principal diseases are trachoma, acute contagious ophthalmia and glaucoma. The first of these is worse in the towns than in the surrounding country; the British population and the troops are remarkably free from infection. The second disease becomes epidemic in September and October, "owing to the fall of temperature allowing the gonococcus to survive on the clothes without being killed through drying." The disease is not nearly so virulent as in England. It is recommended that proclamations should be made in the mosques and synagogues early in September, drawing attention to the disease and to the dangers of delay in dealing with it. Articles in the vernacular press are also advocated. Glaucoma is very frequent and very insidious; it is said to be almost invariably accompanied by lens changes. The ophthalmic surgeon in charge is demonstrating and advocating the Elliot method of trephining among the local faculty. Uncomplicated senile cataract is stated to be an uncommon condition in this country. Myopia is extraordinarily common in Baghdad.

R. H. E.

COHEN (Louis D.). **The Practice of the Madras Ophthalmic Hospital.**—*New Zealand Med. Jl.* 1923. Feb. Vol. 22. No. 107. pp. 47–54. With 2 figs.

Cohen adds another to the list of monographs on the subject of this hospital, and is as deeply impressed as those who have preceded him with the wealth of clinical material, with the organization, and with the pervading spirit of accurate scientific work. He devotes the major part of his article to a description of the Madras technique for cataract extraction, and a careful study of this article will well repay the time

given to it by any worker in the tropics. There is probably no hospital in the world where, with such enormous opportunities for clinical work, the visitor receives a more kindly welcome than that which has now for many years been extended to all who make a pilgrimage to Madras. The young ophthalmologist, who desires to get a practical mastery of his subject, and especially of the tropical branches of it, will do well to follow Mr. Cohen's example, and "stop off" at the capital of the Southern Presidency.

R. H. E.

LOUWERIER (J.). **Bijdrage tot de kennis van oogziekten in de tropen.** [Contribution to the Knowledge of Ocular Diseases in the Tropics.] —*Geneesk. Tijdschr. v. Nederl.-Indië.* 1923. Vol. 63. No. 3. pp. 325–348.

The author gives his views on the eye diseases met with on the East Coast of Sumatra; these are generally in conformity with what has been found to hold in India. The refraction figures do not differ markedly from those derived from European experience. Conjunctival diseases, including trachoma, follow the same lines as in the rest of the East. Acquired syphilis is said to be a more common cause of parenchymatous keratitis, than is the inherited disease. Leprosy does not often show ocular manifestations. These last two statements are somewhat surprising. Cataract is common, but there are no native couchers.*

R. H. E.

FARANI (Alberto). **Occlusão intestinal verminosa.**—*Arch. Brasileiros de Med.* 1923. Aug. Vol. 13. No. 8. pp. 823–824. 1 text fig. [2 refs.]

DE MAGALHAES (P. A.). **O ensino da medicina tropical.**—*Brazil Medico.* 1923. June 23. Year 37. Vol. 1. No. 25. pp. 340–341.

---

* From a summary by Dr. W. J. BAIS.

TUBERCULOSIS.

PROCEEDINGS OF THE TRANSVAAL MINE MEDICAL OFFICERS' ASSOCIATION. 1922. Oct. Vol. 2. No. 6. pp. 1–8.—**The Disposal of Tuberculosis Cases ;** and Nov. No. 7. pp. 3–5.—**Report of the Sub-Committee of the Transvaal Mine Medical Officers' Assoiaction on Tuberculosis among Mine Natives.**

Dr. HERTSLET communicated figures bearing on the numbers of natives repatriated during three alternate years.

	1916.	1918.	1920.	Total.
Tuberculosis of lungs	518	747	947	2,212
Tuberculosis and silicosis	61	97	191	349
Silicosis only	101	85	154	340

The increase in numbers he thinks to be due to more rigid methods of discovery or perhaps a higher incidence of disease. After discussing the relative hospital admissions, deaths and repatriations in East Coast and British South African natives respectively, he gives a summary of the machinery for repatriation of infected cases ; stating that the system works pretty well and is, in his opinion, fairly satisfactory.

An interesting table setting forth the cost of compensation in round figures in 1917, 1919 and 1921 is as follows :—

	1917.		1919.		1921.	
	No.	Amount. £	No.	Amount. £	No.	Amount. £
Tuberculosis	950	16,000	580	14,300	540	26,000
Tuberculosis and silicosis	230	7,100	80	2,600	30	1,600
Silicosis	40	720	350	15,000	200	13,500
Ante-Primary	—	—	15	540	60	2,000
Total		£23,820		£32,440		£43,100

As the author points out, " this amount forms a rather appalling total and seems to be steadily increasing."

As to what happens to the repatriated tuberculous natives there is still room for investigation. In 1918, an enquiry carried out for Dr. WATKINS PITCHFORD on 100 cases is stated to have given results as follows : dead, 26 ; fit for work, 26 ; unfit for work, 11 ; not traced, 37.

It would be interesting to know how long after repatriation the " follow up " was carried out, but this is not here stated. Dr. HERTSLET suggests, as a corrective to ill-advised repatriation, " that the Bureau be authorized to divide all tuberculosis cases into three classes :—

" (*a*) Those likely to be cured by treatment within three or six months ; (*b*) those who may live a year or more if sent home ; and (*c*) those likely to die within a month or two.

" These to be dealt with as follows :—

" The first class to be retained for treatment. The second class to be sent home. The third class detained until their funeral."

Where the Bureau is to discover diagnosable cases of tuberculosis that can be cured by treatment within three months is a problem that puzzles the reviewer, but the point passed without comment in the discussion that followed. Dr. HERTSLET recommended that sanatoria and hospitals should be organized for the reception and the treatment of those not fit for repatriation. The whole matter, together with certain minor points that arose during the discussion, was referred to a sub-committee to report to the next meeting or as soon thereafter as possible.

At the next meeting, which was held on November 14, 1922, the sub-committee presented its report, a very important document, which should be of decided value in standardizing the work of those medical men recruiting for the mines. It would appear from this report that tuberculosis is already widely prevalent in the native territories and that, in many localities, it is slowly increasing in prevalence. With regard to disposal of cases, it is recommended that a permanent record be kept of all tuberculous natives and that they be classified and recorded by mine medical officers under the headings of "Incipient," "Moderately Advanced" and "Far Advanced," these headings being defined. The sub-committee does not consider it advisable at present to recommend the institution of sanatoria or hospitals for natives, treatment being preferably left to existing provincial or private hospitals in native territories, assisted by government grants. To guide and standardize the work of recruiting medical officers and others, the sub-committee sets forth, in a valuable schedule, the defects that should lead to rejection of applicants for employment on the mines.

Those defects that have a direct bearing on tuberculosis are as follows :—

"(1) *Weak Chest.*—Under this head are included all natives who show signs suggestive of even early tuberculosis or silicosis ; natives showing signs of pleurisy, whether acute or chronic ; chronic bronchitis, asthma, or any other lung condition which, in the opinion of the medical officer, might operate as a predisposing factor to tuberculosis. It is very important that the natives shall have good expansion, and that the lungs be clear to auscultation. If the first examination leaves any doubt in regard to the last fact, boys should be set aside for subsequent re-examination as instructed by recent circular.

"NOTE.—Natives who have rales in a circumscribed area, particularly if these are crepitant and are associated with impairment of resonance, should be rejected as being probably tubercular. Crepitations at the bases or in the nipple areas are frequent causes of rejections on the Rand, and particular attention should therefore be paid to these.

"Natives known to have been repatriated as tubercular or as having silicosis should under no circumstances be sent to the Rand.

. . . . .

"(7) *Flabby muscles and loose skin showing recent wasting.*

"NOTE.—It has been the experience that the majority of such natives develop tuberculosis and it is useless to send such men to the mines as they will invariably be rejected by the mine medical officers. But when flabbiness and loose skin are due to underfeeding, improvement may be obtained in some weeks, and, therefore, re-examination is suggested.

"(8) *Defective development.*—Long, thin, young natives, whose chests and arms are not developed in proportion to the legs, *also those who weigh less than 105 lb.*, unless under 5 ft. in height."

The sub-committee are to be congratulated on a well-considered "Schedule of Defects." To the outsider it is rather surprising to find that sanatoria and hospitals are considered inadvisable. There must be local circumstances of a peculiar nature behind what appears at first sight difficult to understand.

S. Lyle Cummins.

PROCEEDINGS OF THE TRANSVAAL MINE MEDICAL OFFICERS' ASSOCIATION. 1923. Jan.–Feb. Vol. 2. No. 9–10. pp. 2–7.—**Final Report of the Tuberculosis Sub-Committee.**

A. The sub-committee consisted of the following : Dr. J. ORENSTEIN (Chairman), Drs. S. DONALDSON, L. G. IRVINE, A. DODDS and

A. I. GIRDWOOD. Dr. P. ALLEN, Tuberculosis Officer to the Union Health Department, was present by invitation.

B. Prevalence of tuberculosis amongst the natives.—The data before the committee were insufficient to permit of definite conclusions, but it was thought safe to state that tuberculosis is widely scattered in the native territories and that, in many localities, it is slowly increasing in prevalence.

C. Initial examination of natives in the territories.—The measures now in use are broadly indicated and the committee does not feel justified in recommending the establishment of a central bureau for the examination of recruits. An amended memorandum on examination of recruits, for the guidance of practitioners in the territories, mine medical officers and the medical men examining voluntary natives and recruits of the Witwatersrand Native Labour Association, is included as an annexure to the report. This annexure may here be considered. It is couched in very general terms and is, on the whole, a good summary of how to examine native recruits. It is not, however, confined to the detection of tuberculosis but deals with all defects which are considered definite causes for rejection of applicants for employment on the mines. The first disability is Weak Chest, defined above.

A curious note under valvular lesions of the heart is to the effect that natives with tachycardia alone may be accepted. In view of the frequent association of tachycardia with early tuberculosis, this note seems unfortunate. A very wise exclusion is that under "Flabby muscles and loose skin showing recent wasting" (above). There is no better danger signal than these defects in muscle and skin tone in tuberculous natives. Due importance is given to defective development in the advice that all who weigh under 105 lbs. be rejected unless at the same time they are less than 5 feet in height. Tubercular glands in the neck are mentioned as a cause for rejection; but there is no mention of tubercular glands elsewhere nor is it pointed out that all glandular enlargement should be regarded with suspicion as probably tubercular if not otherwise explicable. No reference is made to the significance of enlargement of the subclavicular glands, BORREL's glands, regarded by French colonial doctors as of such importance. It is probable that these recommendations, well applied by skilled and careful men, will serve to pick out a fairly high proportion of the infected natives, but it is, in our opinion, axiomatic that no really successful "tuberculosis filter" can be devised that does not include a short period of observation and the systematic recording of temperatures. If such a period could be arranged for, and if not only temperatures but tuberculin cuti-reactions were recorded, not only would the mines be saved much expense in defective labour and repatriation but South Africa would soon make an accurate contribution to the epidemiology of tuberculosis comparable to that provided by the French colonial records collected under the inspiration of CALMETTE and BORREL.

D. Steps taken for the timely detection of tuberculosis among mine native employees and recommendations in regard thereto.—The existing arrangements include periodical weighing, the examination of the lungs of all natives admitted to hospital for any cause, periodical inspection and the examination of all natives who receive an unusually large number of "loafer's tickets," *i.e.*, the "sick passes" issued to those suspended from duty but not ill enough for hospital. The committee recommends that greater care be taken in the weighing, which should be carried out by or under the supervision of a white employee; the latter to bring to the attention of the mine medical

officer any native who appears to him to be out of condition. It is further specified that all natives admitted to hospital for any cause and all who receive an unusually large number of "loafer's tickets" shall be examined *for tuberculosis.*

E. Disposal of tuberculous natives.—It is recommended that a permanent record be kept of all tuberculous natives and that they be classified under the headings of "Incipient," "Moderately Advanced" and "Far Advanced." These headings, satisfactory in themselves, are defined in the report and, it must be added, very badly defined. It is almost incredible that an attempt at the classification of tuberculosis should omit all reference to temperature, and that the only mention of tubercle bacilli in the sputum is a note that they are usually absent in incipient cases. It is disheartening to see an attempt designed to afford information about clinical type damned from the start by omission of records of fundamental importance.

The committee thinks that natives, if offered treatment locally, would refuse it, and that it is useless to attempt to retain at the mine area those found likely to die within a month. Further, it is considered inadvisable to recommend at present the institution of hospitals or sanatoria for the treatment of tuberculosis in natives; the provision of accommodation for such cases in existing provincial and private hospitals being regarded as sufficient. We look in vain for any sort of constructive proposal for the disposal of tuberculous natives, and, while admitting that local difficulties may be great, we can only regard with profound disquiet the facile suggestion to permit the return of dying cases to their kraals and the treatment of advanced phthisics in the wards of general hospitals receiving natives suffering from other diseases.

S. L. C.

LASNET. **Notes concernant l'état sanitaire des divers contingents, Européens et indigènes de l'Armée du Rhin.**—*Ann. de Méd. et de Pharm. Colon.* Paris. 1922. Sept.–Oct.–Nov.–Dec. Vol. 20. No. 3. pp. 273–289.

This paper is full of interest for the student of tuberculosis and, with reference to the French Army of the Rhine, affords a valuable supplement to the observations of BORREL carried out on the Senegalese and other colonial troops during the European War. It lacks, however, the post-mortem studies that are of such importance in comparing the tuberculosis of different races; a defect which is all the more to be regretted since the clinical and epidemiological notes are of the highest interest and prove that the material at the disposal of the author was of a sort to provide much valuable information.

The French Army Medical Authorities, in advance of those of most of the Great Powers in so far as concerns tuberculosis, have elaborated a fairly comprehensive scheme for dealing both with recognized and suspected cases in the Rhine Army. For the suspects there is a "Centre de Triage" at Mayence where the diagnosis can be confirmed or altered and the cases then disposed of according to a definite plan. The cases diagnosed to be suffering from tuberculosis in their own Formations are not sent to Mayence but are evacuated direct. No case of tuberculosis, except when unable to travel, is kept with the Army. European patients are evacuated to Paris, "Native" cases to Marseilles.

As noted by BORREL, the Senegalese troops are by far the most susceptible to the disease; while the Arabs, Moroccans, Annamites and Madagascar natives, though more prone to tuberculosis than Europeans,

tend, nevertheless, to a clinical type comparable to that usually seen in the white races. This greater susceptibility of the Senegalese soldier as compared to the Arab is attributed to the rarity of association of the former with Europeans; while the resemblance of clinical type noted between the Arabs and Moroccans on the one hand and European patients on the other is considered to be due to the more frequent opportunities for contact with infected persons in the French North African Colonies. How great the susceptibility of the Senegalese troops is compared to that of other races will be apparent from the following figures based on the numbers of cases diagnosed per 1,000 of effective strength during a period of twelve months :—

Europeans	9·55
Moroccans	11·73
Arabs	13·33
Annamites	15·31
Madagascar troops	13·32
Senegalese troops	83·32

An interesting table setting forth the localizations of the lesions observed according to race is here reproduced.

Tubercular Localizations.	Europeans.	Moroccans.	Arabs.	Annamites.	Malagasies.	Senegalese.	Totals.
Closed pulmonary tuberculosis	560	8	106	7	6	51	738
Open pulmonary tuberculosis	238	4	52	6	2	8	310
Tubercular bronchitis ..	98	26	156	14	14	37	345
Tubercular pleurisy ..	179	3	45	3	1	28	259
Caseous pneumonia ..	7	9	27	3	6	7	59
Miliary tuberculosis ..	1	—	—	—	—	6	7
Peritoneal tuberculosis ..	16	1	19	3	1	7	47
Tuberculosis of glands ..	29	2	11	1	3	50	96
Tuberculosis of bones and joints	11	1	8	—	2	7	29
Tubercular meningitis ..	1	—	—	—	1	—	2
Other forms of tuberculosis	7	—	3	—	—	1	11
Totals	1,147	54	427	37	36	202	1,903

The close resemblance of the types of localization in the Senegalese troops to that usually seen in infants and young children in Europe will be noticed. The interesting observation is made that the expectoration of tubercle bacilli is rare in Senegalese as compared with the other races observed; thus confirming the findings of ROUBIER during the European War. Attention is called to the difficulties of differential diagnosis in colonial cases due to the frequency of malarial and syphilitic infections in these patients. Most of the Senegalese patients appear to have died soon after the infection had become manifest. As the author puts it: "Il est vraisemblable que bien rare ont été ceux des Sénégalais qui ont pu atteindre leur pays d'origine"; or, again, "Chez les Sénégalais, la mortalité est encore plus elevée et bien peu, parmi ceux qui ont presenté en Europe des signes nets de tuberculose, peuvent revoir leur pays."

S. L. C.

ABBATUCCI & GRAVELLAT. **Prophylaxie de la tuberculose parmi les troupes indigènes coloniales.**—*Presse Méd.* 1923. Aug. 25. Vol. 31. No. 68. (Supplement.) pp. 1421–1424. With 1 fig. [7 refs.]

The authors deal with the steps taken to diminish the danger of tuberculosis for the Senegalese and other colonial troops sent to France for war service.

Measures taken in the Colonies.

These consisted of a severe selection of recruits; careful examination of the lungs; a period of observation in depot camps; and anti-pneumococcic inoculation before embarkation (since pneumonic infection had been found to predispose to tuberculosis).

Measures taken in France.

A period of acclimatization was arranged for the troops in special camps in the Midi and in the south-west; and it may be added that the arrival of drafts was timed to correspond with the most favourable season of the year.

Their service in the line was limited to spring and summer. For the winter, they were sent south to the temperate climate of Marseilles and its neighbourhood. Every effort was made to provide suitable clothing, food, etc.

In conformity with BORREL, the authors give the following points as of diagnostic significance during the latent infection period in the native :—

Skin dry, scaly and depigmented in places, contrasting with the soft shining skin of the healthy black; loss of flesh and of muscle tone; uncertain results of cuti-reaction; sputum usually negative for tubercle bacilli; a daily temperature—swing of from one to one and a half degrees; but few, if any, physical signs over the lungs. The "glands of BORREL," the subclavicular glands, often furnish a valuable sign, being palpable in most cases and frequently visible.

The infected black loses his natural jollity and becomes low and depressed.

The steps for the disposal of infected soldiers are described and are illustrated in a diagram which forms part of the paper. S. L. C.

MORIN (H.) & SONDAG. **Tuberculose chez le noir. Bacillémie.**—*C.R. Soc. Biol.* 1923. Apr. 21. Vol. 88. No. 13. p. 1052.

This brief note records an attempt to ascertain to what extent the progressive tuberculosis of infected Senegalese patients is of a septicaemic nature. From ten patients in the acute pyrexial stage of the disease, blood was removed by venous puncture, 5 cc. from each patient being inoculated subcutaneously into guineapigs. In only one of the ten guineapigs did tuberculosis result. This finding is taken to prove that the septicaemic appearance of infected blacks is misleading, since the proportion of infected bloods is no greater than amongst Europeans. We are inclined to think that there is here some confusion of thought. It is unlikely that tuberculous septicaemia is at all comparable to that found in the early stages of plague or typhoid, where the blood swarms with bacilli. Even in the acute types of tuberculosis there can hardly ever be this flooding of the blood-stream with germs. It is rather a case of small bacillary emboli detached into the circulation from time to time. Even when a lesion ulcerates directly into a vessel, the disease must have already lasted long enough

to ensure sufficient antibodies to arrest the bacilli in the lungs, spleen, bone marrow and other organs and tissues. The finding of one positive in ten from a blood volume of only 5 cc. indicates that there is a considerable tendency to blood infection in Sengalese patients, as, indeed, in early cases in Europe.

S. L. C.

BAQUÉ (B.). **Enquête sur la tuberculose au Mzab (Sahara Algérois) étudiée par les réactions tuberculiniques.**—*Arch. Instituts Pasteur de l'Afrique du Nord.* 1923. May. Vol. 3. No. 2. pp. 136–142. [3 refs.]

The inhabitants of the Mzab region are of mixed origin, chiefly Berberine, but including many other elements. Their mode of life is, for the most part, that of merchants, the children leaving their native villages early and obtaining employment in commerce in the towns of the Tell and the Hauts-Plateaux. To quote our author: "Tout Mozabite rêve d'acquérir dans le Tell la fortune qui lui permettra d'avoir une maison confortable dans sa ville natale"; or, again, "Véritable Savoyard, il amasse dans le Nord pour dépenser chez lui." Under these circumstances it is not to be wondered at that tuberculosis is comparatively common and its infection rather widely spread. Baqué has applied the cutaneous tuberculin test to the children in several schools and reports a percentage of positives which is high in view of the early age of the subjects. The index is:—

(*a*) 34 per cent. for children of 3 to 5 years.
(*b*) 40 per cent. for children of 6 to 10 years.
(*c*) 59 per cent. for children of 11 to 15 years.

The total for all children from 3 to 15 years was 48 per cent. The proportion is about the same for each sex and there is no appreciable difference between persons of different racial stock, Mozabites, Jews, Arabs all being about the same in their percentages. In 1888 the Mzab region had the reputation of having but little tuberculosis. The last 35 years have seen a decided increase.

"L'infection a dû se faire progressivement, apportée du Tell par les commerçants mozabites."

S. L. C.

DE LANGEN (C. D.). **Tuberculosis in the Dutch Indies and in the Tropics.**—*Trans. 4th Congress of the Far Eastern Assoc. of Trop. Med.* 1921. Vol. 2. pp. 219–234. (Discussion, pp. 234–236.)

After a review of the literature of "tropical tuberculosis," de Langen proceeds to an examination of the disease as it occurs in Java. From the reports of military and civil hospitals it is made evident that tuberculosis takes the fourth place after malaria, cholera and typhoid fever, both in its morbidity and mortality. In a total of 422,943 patients, 5,492, or 1·6 per cent., suffered from tuberculosis, and of these 4,613, or 84 per cent., manifested the pulmonary form of the disease.

At the Polyclinic, de Langen found that 10–15 per cent. of the total patients seen are tuberculous, while he came across no less than four cases in a class of eighteen boys from a school under his supervision. It is clear, then, that the disease is now widely spread in at least certain parts of the country.

To obtain further light upon the problem, the author attempted, through an enquiry carried out with the help of both physicians and laymen, to get records of the distribution of the disease. While the

answers show that the disease is widely spread and not limited to the dense centres of population, it is nevertheless clear that it is still very rare in the more isolated places. In one typical note it was stated that tuberculosis had only become known in the population when the area " was delivered from its isolation by a railway connection."

While some of the statistics are admittedly vague, others, founded on post-mortem investigation, are of great interest, showing, as they do, that the disease varies greatly both in clinical type and distribution in different centres. Thus HEINEMANN, working at Deli, mentions only four cases of cured apical lesions in 284 post-mortems, that is to say, only 1·4 per cent. of latent tuberculosis; while, on the other hand, he records there a tuberculosis mortality of 3·47 per 1,000 of population and notes that 59 of his 94 tuberculous patients died in the first year after the clinical appearance of the disease. Against these findings, so suggestive of the acute and unresisted clinical type associated with " virgin soil," SITZEN found, at Batavia, 47 per cent. of cases with latent tuberculosis in his post-mortems, though only 16 per cent. at Sourabaya. Similar contrasts are quoted from the records of other observers.

Hospital reports show that there is a high mortality and morbidity amongst Javanese and Chinese coolies at Deli, though these coolies are all examined before being accepted. These labourers, mostly recruited in the interior, live isolated from the Europeans on the plantations, but it would seem that their mere aggregation into large communities is sufficient to ensure the handing round of infection.

De Langen finds, in Batavia, from an investigation of some thousands of men and women, that 65 per cent. give a positive reaction with the von Pirquet tuberculin test; a result that seems to correspond well with the post-mortem findings of SITZEN; whereas HEINEMANN, examining 3,580 recently arrived coolies at Deli, found only 125, or 3·5 per cent., to give a positive cuti-reaction.

SITZEN's post-mortem findings throw much light on the clinical type of the disease in Java. Lung phenomena were found to be predominant in only half the cases, tuberculosis of lymph glands and serous membranes being very frequent. Though it is not uncommon to meet with chronic lung lesions, the acute pneumonic variety is much commoner than in Europe. The early calcification of the cartilage of the first rib, so common in chronic phthisis, is here seldom seen. Primary intestinal tuberculosis is rare, as are genito-urinary localizations, but it is common to meet with tuberculosis of the spleen, and secondary ulceration of the bowel is often met with. Bony tuberculosis appears to be very rare. In conclusion, the author quotes the observations of CUMMINS [see this *Bulletin*, Vol. 18, p. 62], with which his findings closely accord, that both the clinical type and the epidemiological distribution of the disease depend on variations of acquired resistance and infection. S. L. C.

CUMMINS (S. Lyle). **A Lecture on the Need for Research in Framing Tuberculosis Schemes. Delivered at the Royal Institute of Public Health on Jan. 17th, 1923.**—*Lancet.* 1923. Jan. 27. pp. 165–166.

We may appropriately refer to and endorse that particular part of this lecture which draws attention to the extreme susceptibility of the native populations of the overseas dominions to tuberculous infection and emphasizes the crying need for the epidemiological investigation of tuberculosis everywhere there. A. Alcock.

British Guiana. **The British Guiana Society for the Prevention and Treatment of Tuberculosis. Sixteenth Annual Report of the Committee, 1922.** [Gonsalves (M.), President, & Haslam (John F. C.), Hon. Sec.]—15 pp. 1923. Demerara: Printed by "The Argosy" Co. Ltd. [Price not stated.]

This little report contains a record of work carried out on what appear to be modern and efficient lines though greatly hampered by financial difficulties. The medical staff seems to be entirely honorary and it is therefore easy to understand how hard it is for busy men to give sufficient time to the work, most of which appears to be carried out by the health visitors so far as concerns domiciliary activity. As in the "Old Country," notification seems far from satisfactory, and the figures show that in 1921 there were 611 deaths and only 537 notifications. An improvement is to be seen in 1922, there being 527 deaths to 677 notifications; a figure not much worse than some of our own administrative areas, but still far from good, since we know from the Framingham experiment that there should be about ten notifications to one death. Some brief notes are given on the trial of garlic in tuberculosis by Dr. E. S. Massiah, who finds that while it may be a satisfactory palliative in lung troubles, no curative properties can be ascribed to the treatment. He thinks, however, that the remedy ought to be tried on a controlled scale in the Tuberculosis Hospital. "Hope springs eternal in the human breast."

S. L. C.

Ferreira (Clemente). **Liga Paulista contra a Tuberculose. Exercicio de 1921. Relatorio apresentado á Assembléa Geral na sessão ordinaria de 23 de Maio de 1922.**—75 pp. With 1 chart. 1922. São Paulo: Arlindo Alves.

This report embodies the work of the Model Dispensary "Clemente Ferreira" for 1921 and shows that the campaign against tuberculosis in Rio de Janeiro is an active and up-to-date organization fit to bear comparison with the best schemes of its kind in Europe.

It is clear that the Dispensary has the confidence of the public which it serves, since the cases come early for treatment—a sure index that the results are such as to inspire hope. Of 573 cases verified as tuberculosis during the year under report, the clinical types were as follows:—

Turban-Gerhardt.	Stadium I	..	275 or 47·9	per cent.
,, ,,	Stadium II	..	123 ,, 21·4	,, ,,
,, ,,	Stadium III	..	78 ,, 13·0	,, ,,
Tuberculosis of glands	..	..	97 ,, 16·9	,, ,,
Tuberculosis of intrathoracic glands			94 ,, 16·4	,, ,,

No mention is made of surgical tuberculosis. No doubt these cases are dealt with by some other organization; but it would be of interest to know how their numbers compared with pulmonary cases. Details of the occupations of those attending the Dispensary are given and it is clear that the majority of the males affected by the disease are working men and of the females, domestic servants; but it is difficult to draw conclusions from these records without knowing the numbers of persons engaged in the various trades mentioned. It is of interest to note that no less than 57 per cent. of the cases had had influenza antecedent to their tuberculosis. Haemoptysis was an early symptom in 42 per cent., a fact which points to a fairly chronic type of phthisis such as is often met with in large cities. The author notes "the harmful influence of quitting rural surroundings and the undoubted ill-effects of industrialism with all the factors for the breaking down of resistance and the distribution of infection that it involves."

The most interesting part of the report is that in which measures of treatment are discussed; and especially the paragraphs in which the treatment by sodium morrhuate after the manner of Sir Leonard ROGERS is described. Clinical details and progress notes of six cases treated by intramuscular injections of the morrhuate are given, in all of which some improvement was noted, while this was definite in four of the six. The injections were given two or sometimes three times a week rising from initial doses of 0·5 to 1 cc. up to 4 cc. of a 3 per cent. solution, where the treatment was well tolerated. There were no ill-effects or violent reactions, although Case 5 seems to have had increased cough after a dose of about 4 cc. given intravenously, necessitating a return to 2 cc. as the dose. The author quotes RITTER, who defines the grounds on which claims to successful treatment should be based as follows: "Als objektive Merkmale für eine Besserung kann Man immer nur Fieber, Husten und Auswurf und besonders den Bazillengehalt des Auswurfs anführen."* Ferreira claims that these points are now established for treatment by means of the morrhuate. There is also mention of the treatment of twelve cases with chaulmoogra oil; with good results in five.

Dr. Clemente Ferreira is to be congratulated on a most interesting report. S. L. C.

FERREIRA (Clemente). **Liga Paulista contra a Tuberculose. Exercicio de 1922. Relatorio apresentado á Assembléa Geral na sessão annual ordinaria de 28 de Maio de 1923.**—48 pp. With 1 folding chart. 1923. São Paulo: Typ. Marques, Rua das Flores, 50 a.

While this excellent report will commend itself to all those interested in tuberculosis dispensaries and their work, the exertions of Dr. Clemente Ferreira have placed the Dispensary at São Paulo on a footing equal to that of the best European organizations, and his problems are no longer those of what may be called "tropical tuberculosis." The paper contains much statistical matter comparable to that produced in the Annual Reports of Local Authorities in this country, and these tables may be commended to the attention of all those who seek comparisons between the morbidities and mortalities of tuberculosis in different communities. There is a brief mention of the results of the morrhuate of soda treatment of ROGERS, which requires to be quoted. The remedy was tried, during 1922, in 33 cases; 26 of these being patients with tubercle bacilli in the sputum and rather extensive lesions. In two, there was disappearance of the bacilli from the sputum and five showed marked improvement. Three cases gave up the treatment, nine failed to exhibit appreciable results, one stopped the course for the time being, three went abroad or into the interior without finishing the treatment and two had only recently started the morrhuate at the time of reporting. Taken altogether, there was some improvement in 41 per cent. of the cases. S. L. C.

LEBER (A.). **Klinische Erfahrungen über Behandlung der Lungentuberkulose in den Tropen.** [Clinical Experience of the Treatment of Lung Tuberculosis in the Tropics]—*Trans. 4th Congress of the Far Eastern Assoc. of Trop. Med.* 1921. Vol. 2. pp. 211–218.

After a brief but interesting and capable consideration of the factors underlying the peculiarities of tropical tuberculosis, Leber passes on

* The only objective indications of improvement are in fever, cough, and expectoration, especially its bacillus content.

to the treatment of the disease. He discusses the use of adrenalin, which he has satisfied himself to be of considerable value in tuberculosis cases free from asthmatic tendency. He also discusses tuberculin therapy, which he claims to be of service not only in Europeans but often in natives; but concludes that dosage must be very carefully managed in tropical climates, he himself having observed strong local and general reactions after the subcutaneous inoculation of one ten-millionth of a cubic centimetre of "old tuberculin." Nor is the treatment likely; in his opinion, to lead to final cure. "Wir werden mit dem Tuberkulin die Anregung zur Heilung, nicht aber die Heilung selbst erzielen."*

From this rather pessimistic conclusion, Leber passes on to the use of sodium morrhuate (ROGERS) and at once his optimism revives. For this preparation he claims excellent results, both when used alone, and, even more so, when combined with adrenalin and other treatments of election. The beneficial effects are noted after the first injection, possibly to some extent an instance of suggestion, but accompanied by definite phenomena, such as the rapid diminution of the volume of sputum, a diminution of the number of bacilli therein, a gain in weight and a disappearance of the toxicity of the patient. Results similar to these, obtained by SCHUT at the Ngadiwono Sanatorium, are quoted. The author does not give particulars of individual cases nor the numbers treated, but he is clearly much struck with the utility of this form of treatment. S. L. C.

FERREIRA (Clemente). **Ensaios clinicos de chimiotaxia anti-tuberculosa.**—*Bol. Acad. Nac. Med.* Rio de Janeiro. 1920. Nov. 18. Vol. 91. No. 30. pp. 802–810.

After a review of previous attempts at chemotherapy in tuberculosis, the author quotes the publication by Sir Leonard ROGERS in the *British Medical Journal* of February 8, 1920, p. 142, in which were communicated the early results of the use of sodium morrhuate in the treatment of tuberculosis and leprosy. The work of MUIR and of GANGULI and others in India is also quoted, after which the author proceeds to give details of four cases treated by him with this remedy. The preparation was given in the form of a 3 per cent. solution injected intramuscularly and in some instances intravenously in doses rising from 0·5 or 1 cc. to 3 or 4 cc. The cases were of a more or less chronic type, with the exception of one patient suffering from acute febrile phthisis. The results were on the whole decidedly encouraging, the weight rising, cough and sputum diminishing, while the bacilli became fewer or could no longer be found in the sputum. The acute progressive case seemed to be less favourable than the others and the treatment, in this patient, was not persisted in.

The author, impressed with the results of preliminary trials with sodium morrhuate, expresses his desire to go further with this treatment and to apply it in a larger series of cases. S. L. C.

ROW (R.). **Some Observations on Tubercle Bacilli in Culture with Special Reference to the Properties of an Endolipase.**—*Indian Jl. Med. Res.* 1923. Jan. Vol. 10. No. 3. pp. 692–697. With 2 figs.

In view of the work of KENDALL, DAY and WALKER, who demonstrated that a soluble lipase was liberated during the growth of

* With tuberculin we get the stimulus to cure, but not the cure itself.

tubercle and other acid-fast bacilli in fluid media, Lieut.-Col. Row, I.M.S., decided to ascertain whether any fat-splitting ferment was demonstrable in masses of tubercle bacilli grown on *solid* media rich in fatty material.

To this end, massive growths on glycerinated brain agar were emulsified in citrated saline and divided into two equal portions, each in a separate tube. Of these, one tube was boiled to kill the bacilli and also any ferment present, after which 10 drops of toluene were added to 15 cc. of bacterial suspension; while the other, left unboiled, was treated with 10 drops of toluene also in order to kill the bacilli without injuring the ferment. After a thorough shaking, these tubes were set aside for re-examination at the end of a week or ten days. It was found that, in the unboiled tube, a definite degree of acidity had been produced by the end of this period; and the observation was confirmed by subsequent experiments. At the author's request, Major H. S. Hutchison, I.M.S., carried out estimations of the degree of acidity in such preparations and "controls" with the results shown in the following table.

Tube.	Contents.	C.C.n /100, Na OH required to neutralize.
1	T.B. 2 tubes + 5 drops Toluene + 0·25 cc. Ethyl Butyrate	41·2
2	T.B. 2 tubes + 5 drops Toluene + 0·25 cc. Ethyl Butyrate (boiled)	1·4
3	10 cc. citrated saline + 5 drops Toluene + 0·25 cc. Ethyl Butyrate	0·8
4	T.B. 2 tubes + 5 drops Toluene + 0·25 cc. Methyl Butyrate	30·8
5	T.B. 2 tubes + 5 drops Toluene + 0·25 cc. Methyl Butyrate (boiled)	3·7
6	10 cc. citrated saline + 5 drops Toluene + 0·25 cc. Methyl Butyrate..	3·5

Following up these observations, the author was able to demonstrate that the acid liberated by the ferment (lipase) is capable of extraction with the help of fat solvents, the best for the purpose being petroleum ether. "This extract can be easily filtered through Pasteur-Chamberlain bougies under low pressure without much loss and freed from tubercle bacilli"; and the resulting mixture of fatty acids forms with sodium a series of salts which are fairly soluble in water.

It is clear that Colonel Row has opened up problems of much importance and further communications will be awaited with interest.

S. L. C.

Nainsouta. **Sur un cas de tuberculose observé chez un Zébu aux Abattoirs de la Ville de Dakar.**—*Bull. Soc. Path. Exot.* 1922. Nov. 8. Vol. 15. No. 9. pp. 868–870.

This short paper records the finding of a tuberculous lesion in a bronchial gland of a zebu slaughtered in the town abattoir, the nature of which was confirmed by microscopical examination. The author, in mentioning two recent findings of tuberculosis in cattle at Dakar by Curasson in 1920 and by Teppaz in 1921 [see this *Bulletin*, Vol. 20, p. 187], states that it is the first instance that has come to his personal notice in the course of thousands of systematic examinations carried out both at Dakar and at St. Louis.

He mentions that, where the calf, for any reason, cannot be fed from the mother, native herdsmen have the custom of filling their mouths with milk and expelling it into the muzzles of the calves; and he suggests that, in this way, tuberculous infection might possibly be spread. He was unable to put the bacillary strain through the tests to distinguish whether it was of bovine type; but he thinks that, as in the cases recorded by CURASSON and TEPPAZ, it was probably human.

S. L. C.

CUNNINGHAM (R. A.). **Kenya Colony and the Climatic Treatment of Tuberculosis.** [Correspondence.]—*Lancet.* 1922. May 6. p. 916.

FORNARA. **Note sur un cas de méningite tuberculeuse de la base chez un Noir, avec formation d'un tubercle dans le cervelet.**—*Ann. Soc. Belge de Méd. Trop.* Brussels. 1922. Dec. Vol. 2. No. 2–3. pp. 137–139.

LASNET & TRABAUD. **Fréquence et evolution de la tuberculose parmi les divers contingents de l'armée du Rhin.**—*Congrès de la Santé Publique et de la Prévoyance Sociale. Marseille,* 11–17 *Septembre,* 1922. *Comptes Rendus.* pp. 121–128.

ROGERS (Leonard). **The Application to Tuberculosis of the Successful Treatment of Leprosy by Soluble Preparations of Chaulmoogra, Cod Liver, and other Oils.**—*Brit. Jl. Tuberculosis.* 1922. July. Vol. 16. No. 3. pp. 110–115.

AMOEBIASIS.

With reference to reviews of papers by KOFOID and SWEZY on Amoebiasis of the Bones, and Mitosis in *Endamoeba dysenteriae* in the Bone Marrow in Arthritis Deformans, Dr. Charles A. KOFOID writes as follows:—

"In the review of our article on 'Amoebiasis of the Bones' in volume 19, p. 684, the reviewer, P. H. M-B., states 'In the "amebas" of the intestinal tract the number of chromosomes is eight, in *Endameba coli* it is six.' The context is such that the reader might be led to infer that we had written that the number of chromosomes in *Endamoeba dysenteriae* was eight, since it was this amoeba whose cysts we found in stools in certain individuals with arthritis deformans and with Hodgkin's disease. Our findings are clearly stated in our paper, to wit, that 'we have found that the number of chromosomes in *E. coli* is six, and in *C.* [*ouncilmania*] *lafleuri* is eight. The number of these structures in *E. dysenteriae* is as yet not definitely known to us, but we have sufficient data to indicate definitely that the number is small and probably not more than six.'

"The spelling of 'ameba' and of its derivatives which the reviewer punctiliously encloses in quotation marks is editorial, not that of the authors.

"The same reviewer in later comment [*Trop. Dis. Bull.*, Vol. 20, p. 713] on our papers on the same subjects in the University of California Publications in Zoology vol. 20, says, 'The exact species may be *Councilmania lafleuri* [but see this *Bulletin*, Vol. 19, p. 20].' We desire to direct attention to the fact that this is not our conclusion though it might appear so to the reader of the review. We explicitly state the contrary—(p. 306)—that 'it can not be *Councilmania lafleuri*, which has eight chromosomes,' etc.

"To sum up, we present evidence based on chromosome count that the structures we have interpreted (1922) as amoebae in bone marrow and lymph glands are *Endamoeba dysenteriae*, with approximately six chromosomes. They cannot be *C. lafleuri* which has eight. *E. coli* has six (*fide* Swezy, 1922). Their nuclear structure is that of *E. dysenteriae*, not that of *E. coli*."

Charles A. Kofoid.

REVIEWS AND NOTICES.

MEDICAL RESEARCH COUNCIL. (Privy Council.) Special Report Series. No. 79. **Bacteriological and Clinical Observations on Pneumonia and Empyemata, with Special Reference to the Pneumococcus and to Serum Treatment.** By GLYNN (Ernest E.) [M.A., M.D.Cantab., F.R.C.P., Prof. of Pathology, Univ. of Liverpool], and DIGBY (Lettice) [F.R.M.S.], assisted by JONES (H. Wallace) [M.D.]—167 pp. With 12 figs. 1923. London: H.M. Stationery Office. [Price 5*s*. net.]

Pneumonia is responsible for more deaths than phthisis. This fact, perhaps not very widely appreciated, renders accurate knowledge of the etiology, pathology and treatment of pneumonia a question of paramount importance. It is impossible, however, in the space of a short review to give more than an outline of the information which the present publication contains on these subjects.

After a brief introduction the question of laboratory technique is very fully dealt with. There is nothing particularly new or revolutionary here, but the authors insist on the importance of receiving the material soon after collection—a point which is far from being generally appreciated—and the use of lung puncture, a procedure without danger which has given valuable information in their hands.

The next twenty pages are devoted to the isolation and identification of the pneumococcus. Mouse inoculation is the method of choice for its isolation from sputum, though of little or no value for other organisms met with in pneumonia, and in the opinion of the authors bile solubility is the most valuable test for differentiating the pneumococcus from streptococci. Naturally the final identification of the pneumococcus rests on agglutination with the type sera. Other organisms isolated from pneumonic sputa included streptococci, staphylococci, various Gram-negative cocci, the influenza bacillus and Gram-negative bacilli of the colon group, but, with the possible exception of some of the latter, the presence of these secondary infections seemed to have little bearing on the final issue.

From the valuable chapter dealing with the flora of normal sputum it would appear that this differs from that of pneumonic sputum in the smaller number of organisms present, their greater variety, the greater incidence of streptococci and the relative infrequence of pneumococci and Gram-negative bacilli.

With regard to the epidemiology and mortality of pneumococcal pneumonia, the authors' findings corroborate recent work in the United States and this country. Of 140 cases examined (112 lobar and 28 broncho-) 127, or 90·7 per cent., were pneumococcal, and of these 105, or 82·7 per cent., were lobar pneumonia. The figures for type incidence and mortality correspond closely with those of previous British workers. Types I and II were responsible for the bulk of the cases of lobar pneumonia, and the low incidence of Type III in this country was confirmed. The authors estimate that in 1919 the Type I pneumococcus alone was the cause of 8,000 deaths—twice the number of deaths from diphtheria—and on these grounds and on the grounds of the " fixity " of this type of pneumococcus they put forward a plea for a more extensive trial of Type I antiserum, the therapeutic value of which has been demonstrated by the researches of the Rockefeller Institute. In broncho-pneumonia the highest incidence by far belongs to Group IV pneumococci, and here it is interesting to note the great difference in mortality between Group IV lobar pneumonia and broncho-pneumonia, it being considerably higher in the latter condition. The reverse of this is found in Type I cases.

Following chapters deal with non-pneumococcal pneumonias, the bacteriology of empyema, the source and pathogenicity of organisms in pneumonic sputum and the correlation between the clinical history and the bacteriology of pneumococcal and streptococcal pneumonias and empyemata. There seems to be some hope of being able eventually to

differentiate, on clinical grounds alone, between a streptococcal or Group IV infection and a Type I infection.

This report is of value not only for the authors' own observations, but also as a *mise au point* on this important subject.

S. Phillips Bedson.

FLETCHER (William). [M.D. Camb., Bacteriologist, Inst. for Med. Res., Kuala Lumpur.] **Notes on the Treatment of Malaria with the Alkaloids of Cinchona.**—*Studies from the Inst. for Med. Res. Kuala Lumpur Federated Malay States. No. 18.*—pp. viii+92. With 7 figs. 1923. London: John Bale, Sons & Danielsson, Ltd., 83–91, Great Titchfield Street, W.1. [Price 6*s*. net.]

Some of this book's contents (cinchona febrifuge, intramuscular and rectal quinine medication) have been elsewhere abstracted. It remains to consider the rest. Quinine sulphate, cinchonidine sulphate, quinidine sulphate and cinchonine alkaloid given in doses of ten grains daily to persons of about 100 lb. were almost equally effective in suppressing parasites. In smaller doses the second and fourth were less effective than the others. In quartan malaria the sulphate of quinidine was somewhat more active than that of quinine. Quinine alkaloid and euquinine were valuable, quinoidine, quinine tannate and quinine dicarbonate not so. For disinfestation the recommendation is for 20 grains of quinine sulphate daily continued for at least four weeks, in Fletcher's experience the limit of voluntary endurance.

The arresting feature of the book is the evidence offered regarding quinine resistance, as checked by that of quinine excretion. Of 233 patients supposed to be taking quinine in various hospitals of the Federated Malay States, in some 25 per cent., including one in which the dosage prescribed was 120 grains daily for eight days, Mayer's reagent detected none in the urine. The outcry against quinine as ineffective to cure has latterly been bitter. The failure is susceptible of four explanations—(1) There was a new war parasite, a suggestion without slightest morphological grounds; (2) The establishment of quinine resistance, for which no real evidence exists; (3) Gastrointestinal disease causes non-absorption, a matter contrary to evidence; (4) The quinine is not swallowed. During 1918 Fletcher saw at the University War Hospital many men with sheaves of documents reporting long and ineffectual treatment with quinine, ideal cases for his purpose. After obtaining a blood smear, Fletcher satisfied himself by personal examination that each of these men swallowed twice a day 10 grains of sulphate of quinine in solution. His search for a quinine-fast case ended in disappointment. The supposed resistance vanished. His only experience of real quinine resistance, and that partial, is the solitary case mentioned in this *Bulletin*, vol. 20, p. 301, a significant fact seeing his prolonged and careful search for such a condition.

The book ends by reminding us that there's many a slip twixt the cup and the lip; as it begins by quoting LEONARDO DA VINCI, "God dost give unto us all good things at the price of labour." Fletcher has paid the price.

Clayton Lane.

MARTIN (Hugh) [M.A.] & WEIR (H. H.) [M.A., M.B.] [Edited by.] With Introduction by PAGET (Stephen) [F.R.C.S.]—**Medical Practice in Africa and the East. Being a Series of Open Letters on Professional Subjects from Doctors practising Abroad, addressed to their Colleagues at Home.**—pp. x + 111. 1923. London: Student Christian Movement, 32, Russell Square, W.C. 1. [Price 4*s*. net. In paper 2*s*. 6*d*. net.]

As the writer of the introduction is quick to notice, this book "has been published under a title which rather conceals than displays the universal

interest of the letters." These letters, ten in number, describe well the life and work of the surgeon and sanitarian among millions of poor and ignorant folk, sufferers from endless forms of disease, to be found in that vast area here called "Africa and the East." They tell also of personal pride in good work, of gratitude for good done to the body leading to a readiness to listen to the Christian missionary's message, which might not be so willingly yielded except under the influence of the benefits received. As recorded in the opening letter by Dr. H. T. HOLLAND, C.M.S. Hospital, Kashmir: "Here [Shikarpur], where other efforts had signally failed, an opening for missionary work was made by the point of a cataract knife, as the late Dr. A. NEVE once so well expressed it."

Turning to purely medical and surgical results as recorded by the various writers, these letters will reveal to the student and doctor at home the vast opportunities which lie to hand for operative surgery, especially operations for cataract and stone in the bladder. It is hardly an exaggeration to write that many a medical missionary anywhere in the tropics and many a civil surgeon in India may perform as many major operations in a year as would fall to the lot of an English surgeon in a lifetime.

The physician and sanitarian have a more difficult task, as all know who work in tropic lands. There is still plenty of room for those skilled in obstetrics and especially for women doctors so skilled, in India.

The style of the letters is easy and interesting; the print is good and the book is cheap!

J. H. Tull Walsh.

MACPHERSON (W. G.) [K.C.M.G., C.B.], LEISHMAN (W. B.) [K.C.M.G., C.B., F.R.S.] & CUMMINS (S. L.) [C.B., C.M.G.] [Edited by]. **History of the Great War, based on Official Documents. Medical Services—Pathology.**—pp. vi+600. With 2 plates and various figs. and charts. 1923. London: H.M. Stationery Office. [Price £1 1*s*.]

The well printed and admirably edited volume of the *History of the Great War* devoted to pathology, contains 33 articles with their selected bibliographies, but reference will be made here to only those specially interesting to readers of the *Bulletin*. In the account of the organization of the Pathological Service a just tribute is paid to the help afforded by the Medical Research Council (then Committee), for example, the training of protozoologists under Professor C. DOBELL, who, with Colonel D. HARVEY, contributes the chapter on amoebic dysentery. This well illustrated article points out that most of the cases regarded as mixed dysentery from Gallipoli were examples of true paratyphoid or bacillary dysentery; that the majority of those infected with *Entamoeba histolytica* were carriers of that parasite, and that a considerable proportion of the entire population of the globe, possibly 10 per cent., are healthy carriers of *Entamoeba histolytica*; in fact, investigation showed that the percentage of infection was approximately the same in dysenteric patients and in those invalided home for other causes. The failure of the routine of three negative examinations and of hypodermic injections of emetine was a striking observation. The conclusion is reached that the detection, segregation, and treatment of amoebic carriers are from a military point of view inexpedient, and that the geographical distribution of the parasite is co-extensive with that of man. The numerous investigations made during the war have shown that there are at least five species of amoeba found in the human intestine. Sir F. W. ANDREWES describes the extensive studies of all types of the *Bacillus dysenteriae* undertaken during the war and shows reason for suspecting that lactose-fermenting strains may, contrary to the general opinion of British bacteriologists, be pathogenic. Both in bacillary dysentery and in the enteric fevers the pronounced intermittence of the carrier state constituted a difficulty in connexion with the drafting regulations.

In dealing with the Enteric Fevers, Lieutenant-General Sir W. LEISHMAN says that as the existence of a third species of the paratyphoid bacillus was not fully recognized till after the war no statistics of cases appear under the heading of paratyphoid C., and that the conditions at Gallipoli much interfered with an accurate bacteriological diagnosis. But since the war a quadruple vaccine has been prepared at Millbank and employed in some parts of the Middle East garrisoned by British troops. *Bacillus paratyphosus C.* or *Bacillus paratyphosus B type Hirschfeld* is also referred to by Dr. LEDINGHAM in his article on war diarrhoea, in which he discusses the presence of *Entamoeba histolytica*, *B. dysenteriae* and other organisms in diarrhoea without blood or mucus. Colonel Andrew BALFOUR's description of the work done on typhus fever during the war shows the great light that has been thrown on this disease, and in discussing its etiology refers to TODD and WOLBACH's work (published in 1922) bringing additional evidence in favour of the causal rôle of *Rickettsia prowazeki*. Dr. Merwyn GORDON appropriately writes on cerebrospinal fever, and after summarizing the state of knowledge of its pathology at the beginning of 1915, proceeds to describe the researches carried out during the war; of the four types the most pathogenic was found to be type I whereas the therapeutic effect of the corresponding serum was the most satisfactory; the results with type II serum were disappointing, and further definition of this complex type is desirable.

Dr. J. W. MCNEE suggests that trench fever may possibly have been a little-known tropical or sub-tropical disease introduced into Flanders by contingents from such countries. It is pointed out how the disease gradually became more severe from the time of its first appearance when splenic enlargement and the long or relapsing form were not observed. The conclusions of the British and of the American Commissions as to the infectivity of the various constituents of the blood and as to the mechanism by which lice spread the disease are given and there is a clear but cautious summary of existing knowledge of this disease. Dr. J. G. ADAMI is firmly of opinion that Pfeiffer's bacillus is primarily responsible for influenza, and suggests as a remote possibility that in the later phase of a pandemic there may be a phenomenon similar to paraagglutination, viz., that non-pathogenic micro-organisms living in the body in association with organisms producing agglutinins eventually themselves are agglutinated by relatively high dilutions of the serum of the specifically infected animal; thus streptococci living in body fluids containing the influenzal toxins may take up and eventually elaborate these toxins, and in their growth within the body produce lesions of influenza. In Professor Adrian STOKE's well illustrated article on spirochaetal jaundice, Noguchi's term *Leptospira icterohaemorrhagiae* is adopted as its morphology warrants a separate class from the spirochaetes. Of the three epidemics of jaundice in the British army that in Gallipoli was not leptospiral, while those on the Ypres front and that in Italy were due to this infection. Although the life history of the leptospira has not been fully worked out, there is some evidence, such as the filtrable nature of the organism while the filtrate, though free from leptospirae, shows by culture and animal inoculations that the virus has passed the filter, that it has a granular stage; further, cultures and sometimes animal tissues are found to contain granules of a suggestive nature. Professor STOKES failed to infect animals with blood taken during a relapse, and it may be added that this observation fits in with the view that the relapses are not due to a revival of the infection, but to liberation of toxins from destruction of the leptospirae.

Humphry Rolleston.

Corrigendum.

Vol. 20, p. 820, line 25, *for* "sea-anemones and medusae living in salt water" *read* "sea-anemones and medusae living in fresh water."

INDEX TO AUTHORS.

The bracketed abbreviations after the page numbers indicate the subject. Page numbers within brackets indicate papers not summarized.

Am.	signifies	Amoebiasis and Amoebic Dysentery.
Avit.	,,	Avitaminoses.
Bb.	,,	Beriberi.
Bl.	,,	Blackwater.
B.R.	,,	Book Review.
Chl.	,,	Cholera.
Der.	,,	Tropical Dermatology.
Dys.	,,	Dysentery (Bacillary and Unclassed).
Ent.	,,	Enteric Fevers.
Fev.	,,	Fevers.
Hel.	,,	Helminthiasis.
H.S.	,,	Heat Stroke.
Jaun.	,,	Infectious Jaundice.
K.A.	,,	Kala Azar.
Lab.	,,	Laboratory Methods.
Lep.	signifies	Leprosy.
Mal.	,,	Malaria.
Misc.	,,	Miscellaneous.
Oph.	,,	Tropical Ophthalmology.
Pel.	,,	Pellagra.
Pl.	,,	Plague.
R.F.	,,	Relapsing Fever and Other Spirochaetoses.
Sc.	,,	Scurvy.
Sp.	,,	Sprue.
S.S.	,,	Sleeping Sickness.
Tb.	,,	Tuberculosis.
Und.	,,	Undulant Fever.
Ys.	,,	Yaws.
Y.F.	,,	Yellow Fever.
Z.	,,	Medical Zoology.

A

Abadie, C., 982 (Oph.)
Abbatucci, S. & C., 977 (Mal.)
——, with Gouzien, 484 (Lep.)
——, & Gravellat, 995 (Tb.)
Abe, B., Fukui, S. & Imai, I., 763 (Misc.)
Abrami, with Joltrain & Widal, (520) (Misc.)
Abrassart, M., 59 (Misc.)
Acar, M., 745 (Pl.)
Accra, 18 (Misc.)
Ackert, J. E., with Cort, Augustine, Payne, F. K. & Payne, G. C., 240 (Hel.)
——, Payne, F. K., Stoll, N. R., & Augustine, D. L., 949 (Hel.)
Aconcha, L. E. S., 648 (Misc.)
Acton, H. W., 46, 57, 664, 927 (Misc.)
——, & Chopra, R. N., 645 (Misc.)
——, ——, & Boyd, T. C., 410 (Dys.)
——, with Harvey, 32 (Misc.)
——, & King, H., 59 (Misc.)
——, with Knowles & Gupta, 965 (Mal.)
Adie, H. A., 104 (K.A.)
Adler, S., 588 (Mal.)
——, with Yorke, (165) (Lep.)
Admiralty, 932 (B.R.)
Affre, with Garin, 976 (Mal.)
Africa, C., with Monserrat, 947 (Hel.)
Agcaoili, F., with Wells & Feliciano, 429 (Misc.)
Aievoli, E., 238 (Hel.), 553, 977 (Mal.)
Akamatsu, M., 63 (Misc.)
Alalou, M., 372 (Chl.)
——, with Delamare, 880 (R.F.), 908 (Misc.)
——, with Noury, 738 (Chl.)
Albiston, H. E., 229 (Hel.)
Alcock, A., 265 (Med. Entom.)
Aldershoff, H., 962 (Mal.)
Alessandri, C., 224 (Hel.)
Alexander, R. H., 69 (H.S.)
Alfaro, S., 976 (Mal.)
Alfonso Blanco, R., (430) (Misc.)
Alibert, J., with Sézary, 30 (Misc.)
Allain, 365 (Pl.)
Allen, A. H., 563 (Mal.)
de Almeida, Junior, T., 259 (Hel.)
——, & Pessoa, S. B., 250 (Hel.)
Alphand, 23 (Misc.)
Alport, A. C., 588 (Lab.)
Alquier, A., 193 (Tb.)
Ambrose, L., (66) (Misc.)
Amster, 788 (Z.)
Ancona, G., 473 (Z.)
Anderson, C. W., 619 (Hel.)
Anderson, C., with Gobert, 620 (Hel.)
——, with Nicolle, 573, 866 (K.A.)
Anderson, J. S., 125 (Dys.)
Anderson, L. A. P., with Howard & Simonsen, 904 (Misc.)
Anding, C. E., 879 (R.F.)
Ando, A., 627 *bis* (Hel.)
Ando, R., 209 *bis*, 210 (Hel.)

de Andrade, M., with de Mello, 137 (R.F.)
Andrews, L. A., 874 (K.A.)
Andriana, S., 495 *bis* (Lep.)
d'Anfreville de la Salle, L., 900 (Misc.)
Angola, 519 (Misc.)
Anigstein, L., 429 (Misc.), 584 (Jaun.)
Ann. de Méd. et Pharm. Coloniales, 446 (Z.)
——, Soc. Belge de Méd. Tropicale, 512 (Misc.)
Annandale, N., 420 (Z.)
——, & Sewell, R. B. S., 207 (Hel.)
Anschutz, (643) (Hel.)
Aoki, K., 117 (Dys.), 478 (Z.)
——, with Tsurumi, Hara, Sakamoto & Imai, 743 (Pl.)
Apert, E., & Broca, R., 584 (Jaun.)
Appel, F., 24, 27 (Misc.)
Aragão, H. de B., 800 (Z.)
Arana, F., 988 (Oph.)
Arce, J.,(66) (Misc.), 810, 811 *bis* (Fev.), (978) (Mal.)
Archibald, R. G., 27 (Misc.), 194 (Tb.), 378 (Und.), 486 (Lep.), 620 (Hel.), 867 (K.A.)
Archibald, R. G., with Byam, 521, 614, 769 (B.R.)
Archives des Instituts Pasteur de l'Afrique du Nord, 33 (Misc.)
Archives de Médecine et Pharmacie Navales, 421 (Z.)
Ardila Gomez, L., with Peralta, M'Acormick, Carvajal, Pradilla Gonzalez, Gomez, Valdivieso, & Serpa, 911 (Misc.)
Ardin-Delteil, Azoulay, R., & Salles, 669 (Misc.)
Arêa Leão, A. E., with Terra, Torres & da Fonseca, 278 (Der.)
Aresu, M., 562 (Mal.)
Ariazzi, A., & Pico, C. E., 159 (Lep.)
Arlo, J., 616 (Hel.)
Arloing, F., with Weill & Dufourt, 80 (Avit.)
Aron, H., 396 (Sc.)
Arrillaga, F., & Guglielmetti, J., 63 (Misc.)
Arsimoles, with Hauduroy, (732) (Dys.)
Asada, J., 237 (Hel.)
Ascoli, A. (128) (Dys.)
Ash, J. E., 726 (Dys.)
Ashe, E. O., 381 (Und.)
Asheshov, I. N., with Mitchell & Richardson, 83 (B.R.)
Ashford, B. K., 734, (735) (Sp.)
Ashworth, J. H., 451 (Z.)
Asoaka, R., 938 (Hel.)
Assam, 94 (K.A.)
d'Astros, Giraud, P., & Raybaud, J., 875 (K.A.)
Atkins, W. R. G., 795 (Z.)
Atmosoediro, M. I., 851 (Misc.)
Auden, F. T., 182 (Ys.)
Audibert, 896 (Misc.)
Augustine, D. L., with Cort, Ackert, Payne, F. K., & Payne, G. C., 240 (Hel.)
——, with Ackert, Payne & Stoll, 949 (Hel.)
Auricchio, L., 379 (Und.), 869 (K.A.)
Austen, E. E., 470 (Z.)
Awati, P. R., 95 (K.A.)
Ayyar, T. S., & Krishnan, K. V., 98 (K.A.)
Azoulay, R., with Ardin-Delteil & Salles, 669 (Misc.)

B

Bach, F. W., 787 (Z.)
——, & Kiefer, K. H., 453 (Z.)
Bachmann, A., 374 (Ent.)
Baerg, W. J., 801 (Z.)
Baermann, G., 326 (S. S.), 969 (Mal.)
Bail, O., 123 (Dys.)
Baillat, with Lefebre, (261) (Hel.)
Bais, W. J., 63 (Misc.), 256 (Hel.)
Baker, C. R., 52 (Misc.)
Baker, F. C., 207 (Hel.), 478 (Z.)
Bakker, C., with v. Dijke & Hoesen, 608 (Misc.)
Baldovino, C., 16 (Misc.)
Balfour, A., 4 (Misc.), (338) (S.S.), 454, 792 (Z.), 656 (Misc.), 803 (Und.)
Balour, M. I., 422 (Misc.)
Balteano, I., 722 (Dys.)
Bambaren, C. A., 474 (Z.)
Bana, F. D., with Powell, 881 (Fev.)
Bance, J. E., (66) (Misc.)
Banerjea, S., (430) (Misc.), 944 (Hel.)
Banerjee, D. N., & Saha, J. C., 573, 869 (K.A.)
Banerjee, H. C., 977 (Mal.)
Banerji, D. N., 97, 870 (K.A.), 371 *bis* (Chl.)
Banerji, R. N., 631 (Hel.)
——, with Megaw, 814 (Bb.)
Baqué, B., 996 (Tb.)
Barber, H. W. (165) (Lep.)
Bardier, E., & Stillmunkés, A., 477 (Z.)
Bardou, (66) (Misc.)
Bargy, M., 506, 507 (Oph.)
Barlow, C. H., 618 (Hel.)
Barnes, M. E., 259, 344 (Hel.), 793 (Z.), 846 (Misc.)
Barraud, P. J., 461 (Z.)
Barreto, A., 145 (Y.F.)
Barrett, J. W., 914 *bis* (Misc.)
Bartolotta, E., 498, 983 (Oph.)
Barykin, W., & Kritsch, N., 661 (Misc.)
Basa, J. A., with Gomes & Nicolas, 157 (Lep.)

Bass, C. C., 970 (Mal.)
Bassett-Smith, P. W., 377 (Und.), 964 (Mal.)
Bates, L. B., with St. John, 131, 132 (R.F.)
Battaglia, M., 699 (S. S.)
Baugh, W. P., (643) (Hel.)
Baujean, with Kerneis, (520) (Misc.)
Baury, A., with Leger, 43, 44 (Misc.), 291 (Mal.), 364, (365), 742 *bis*, 745 (Pl.), 615 (Hel.)
——, with Leger, & Bédier, 292, 555 (Mal.)
——, with ——, & Huchard, 426 (Misc.)
Bauvallet, 285 (Der.)
——, with Houillon, 882 (Y.F.)
Baylis, H. A., (643) (Hel.)
Beach, W. H., & O'Brien, H. R., 617 (Hel.)
Beare, F. H., 718 (Dys.)
Becher-Rudenhof, F., (643) (Hel.)
Beck, R., 356 (Bl.)
Becker, 498 (Oph.)
Becker, E. R., 867 (K.A.)
——, with Hegner, 440 (Z.)
——, with Taliaferro, (479) (Z.)
Beckwith, T. D., with Reich, 335 (S.S.)
Bédier, E., with Leger, 139 (R.F.), 297, 306, 555, 971, 976 *bis* (Mal.), 445, 446, 447 (Z.), 939 (Hel.)
——, with ——, & Baury, 292, 555 (Mal.)
——, with ——, & Pinaud, 555 (Mal.)
Beeson, B. B., 286 (Der.)
Begle, H. L., 500 (Oph.)
Béguet, M., with Sergent, Edm., Parrot, Lemaire & Vérité, 667 (Misc.)
Behdjet, H., 876 (K.A.)
Behr, C., 502 (Oph.)
Beijnen, G. J. W. K., 113 (Am.)
Bell, W. B., 455 (Z.)
Bénard, R., with Bergé, Guttmann, & Roberti, 227 (Hel.)
Benchetrit, A., 488 (Lep.)
Bengston, I. A., 918 (Misc.)
Bentmann, E., with Hiltmann, E., & Köhler, O., 897 (Misc.)
Bercovitz, N., 671 (Misc.)
Bergé, A., Bénard, R., Guttmann, R. A., & Roberti, J., 227 (Hel.)
Bergell, P., & Bonnin, L., 117 (Dys.)
Bernard, N., 894 (Misc.)
Bernard, P. N. 433 (B.R.)
Bernucci, F., 824 (Lep.)
Bertarelli, E., & Marchelli, M., (373) (Chl.)
Berthélemy & Le Bourdellès, 374 (Ent.)
Bertoye, P., with Mouriquand & Michel, 399, 819 (Sc.)
Bertrand, (978) (Mal.)
Besredka, A., 678 (Misc.)
Bessemans, A., 98 *bis* (K.A.)
Bettencourt, A., & Borges, I., 218 (Hel.)
——, ——, & de Seabra, A., 217 (Hel.)
——, & Figueira, L., 621 (Hel.)
——, & da Silva, E. P., 218 (Hel.)
Beurnier, 284 (Der.)
——, & Clapier, 181 (Ys.)
Bevis, W. M., 55 *bis* (Misc.)
Beynen, G. J. W. K., 413 (Dys.)
Bezssonoff, 398 (Sc.)
Bidault, R., 574, 876 (K.A.)
de Biehler, M., 118 (Dys.)
Bigelow, G. H., with Moss, 172 (Ys.)
Bigland, A. D., 887 (Pel.)
Biglieri, R., 631 (Hel.)
Bijlsma, U. G., 762 (Misc.)
Billiard, A., with Dévé, 226 (Hel.)
Billinghurst, W. B., 106 (Am.)
Birchett, J. A. K., with Lustberg, 77 (Pel.)
Bird, F. D., (643) (Hel.)
Birt, Ed., 405 (Am.)
Biscons, with Rouzaud & de Fossey, 848 (Misc.)
Bizard, E., & Terrien, E., 569 (K.A.)
Bjekoloff, P., & Schuhalter, W., 135 (R.F.)
Blackham, R. J., 397 (Sc.)
Blacklock, B., 630 (Hel.), 868 (K.A.)
Blanchard, M., 306 (Mal.), 353 (Bl.)
——, & Lefrou, G., 138 *bis*, 202, 878 (R.F.), 328 (S.S.), 353 (Bl.), 439 (Z.), 602, 658 (Misc.)
——, ——, & Laigret, 142, 582 (Jaun.)
Bleyer, J. C., 656 (Misc.)
Bloch, T. S., 366 (Chl.)
Bloch & Bouvelot, 162 (Lep.)
Boase, W. G., 1 (Misc.)
Bode, P., 449 (Z.)
Bodet, 796 (Z.)
Bolognesi, G., 478 (Z.)
Bolton, J. S., & McGrath, M. J., 720 (Dys.)
Bombay, 30 (Misc.), 364 (Pl.), 596 (Lab.)
Bon, G. J., 110 (Am.)
Bonavia, L. L., with Parodi, 500 (Oph.)
Bonnet, A., with Nénon, 38 (Misc.)
Bonnin, L., with Bergell, 117 (Dys.)
Bonrepeaux, 282 (Der.)
Bordas, Dubief & Tanon, 361 (Pl.)
Borges, I., with Bettencourt, 218 (Hel)
——, with ——, & de Seabra, 217 (Hel.)
Bory, L., 180 (Ys.)
Bose, I., (978) (Mal.)
Bose, S. C., with Roy, 230 (Hel.)
Botelho, R., with Kraus, 476 (Z.)
Botreau-Roussel, 34 (Misc.)
Bouffard & Girard, 374 (Ent.)
Boulay, A., 923 (Misc.)
——, & Leger, M., 492 *bis*, 493 (Lep.
Bourges, H., 12 (Misc.)

Bouron, A., with Kerrest & Gambier, 132 (R.F.)
Bouvelot with Bloch, 162 (Lep.)
Bouvier, E., 980 (Oph.)
Boyd, A. S., & Joseph, M., 65 (Misc.)
Boyd, J. E. M., 806 (Fev.)
Boyd, T. C., with Acton & Chopra, 410 (Dys.)
Boyd, W. H., with Manwaring, & Okami, 739 (Chl.)
Boyé, 314 (S.S.), 356 (Bl.)
Boyers, L. M., with Kofoid & Swezy, 713 (Am.)
Bradley, B., 13 (Misc.)
Brahmachari, U. N., 102, 568, 871, 875 (K.A.)
——, & Sen, P. B., 872 (K.A.)
Branch, S., 340 (Hel.)
Brandenburg, K., 307 (Mal.)
Brau, P., 298 (Mal.), 732 (Dys.)
Breda, A., 105 (K.A.)
Breffeil, 42 (Misc.)
Breinl, F., 119 (Dys.)
Bremer, K., 227 (Hel.)
Bressot, E., 108 (Am.)
Bridges, D., 56 (Misc.)
Briggs, L. H., 132 (R.F.), 963 (Mal.)
British Guiana, 998 (Tb.)
——, West Indian Medical Conference, 1 (Misc.)
Broca, R., with Apert, 584 (Jaun.)
Broden, (66) (Misc.)
Broden, A., 60 (Misc.), 218 *bis* (Hel.)
Broden, E., 518 (Misc.)
Brodribb, C., 846 (Misc.)
Brown, D. M., 286 (Der.)
Brown, H. C., 411 (Dys.)
——, with Henry, 782 (Z.)
——, & Stammers, G. E. F., 455 (Z.)
Bruchansky, B., (415) (Dys.)
Brug, S. L., 22 (Misc.), 929 (B.R.)
Bruhat, 385 (Fev.)
Brumpt, E., (66) (Misc.), 213 (Hel.), 262 (B.R.)
Brunet, 662 (Misc.)
Brusa, P., 905 (Misc.)
de Buen, S., 99, 568, 577 (K.A.), 754 (Misc.), 793 (Z.), 962 (Mal.)
——, with Luengo, E., 698 (S.S.)
——, with Luengo & Luengo, 99 (K.A.)
Buisson, J., 352 (B.R.)
Bull, L. B., 503 (Oph.), 807 (Fev.)
Burga, B., 247 (644) (Hel.)
Burgess, E., with Docherty, 207 (Hel.)
Burnet, E., 382, 803 (Und.)
——, with Nicolle & Conseil, 804 (Und.)
Bussy, with Rollet, 987 (Oph.)
Butler, E. J., 423 (Misc.)
Buxton, P. A., 789 (Z.)
——, & Krikorian, K. S., 212 (Hel.)
Byam & Archibald, 521, 614, 769 (B.R.)

C

Caballero, A., 792 (Z.)
Cabrera, C., & Wade, H. W., 427 (Misc.)
Caius, J. F., & Mhaskar, K. S., 253 *bis* (Hel.)
Calalb, G., with Combiesco & Magheru, 722 (Dys.)
Calamida, F., 96 (K.A.)
Calcutta School of Trop. Med., 755 (Misc.)
Calderón, V. M., 501 (Oph.), 633 (Hel.)
Calhoun, F. P., 985 (Oph.)
Calmette, A., 183 (Tb.)
Calvin, J. K., with Hess & Moore, 81 (Avit.)
Camail, des T. C., (66) (Misc.)
Cambessédès, with Tanon, 743 (Pl.)
Campana y Cassi, T., 99 (K.A.)
Campbell, A. W., with Cleland, 649 (Misc.)
Campbell, J. A., 672 (Misc.)
——, with Hill, 761 Misc.)
Cantieri, C., (978) (Mal.)
Cantlie, N., 899 (Misc.)
Capone, G., 372 (Chl.)
Cappelli, J., 833 (Lep.)
Carbonell, M. V., & Zwanck, A., 627 (Hel.)
Carini, A., 44 *bis* (Misc.)
Carneiro, A. L., 277 (Der.)
Carniol, A., 578 (R.F.)
Caronia, J., 97 (K.A.)
Carougeau, with Fontoynont, 279 (Der.), 659 (Misc.)
Carpenter, G. D. H., 794 (Z.)
Carrasco, M. C., 577 (K.A.)
Carrasquillo, H. F., 214 (Hel.)
Carrère, L., with Lisbonne, 726 (Dys.)
Carrieu, with Ducamp & Gueit, 143 (Jaun.)
Carrion, A. L., 277 (Der.)
Carter, H. R., (147) (Y.F.)
Carvajal, M., with Peralta, M'Acormick, Pradilla Gonzalez, Gomez, Valdivieso, Serpa & Ardila Gomez, 911 (Misc.)
Castagna, P., 972 (Mal.)
Castellani, A., 576, 874 (K.A.)
——, Douglas, M., & Thomson, T., 657 *bis* (Misc.)
——, & Taylor, F. E., 424, 920 (Misc.)
Castelli, G. (140) (R.F.)
Castorina, G., 100, 568 (K.A.)
de Castro, A. B., 47, 66, 660, 663, (Misc.)
Catanei, A., 878 (R.F.)
——, with Sergent, Et., 976 (Mal.)
Catanel, A., with Sergent, Et., & Foley, 560 (Mal.)
Cauchemez, L., 113 (Am.)
Cavaillon & Wibaux, 406 (Dys.)

Cawston, F. G., 30, 845 (Misc.), 112, (Am.), 165 (Lep.), 216 *bis*, 221, 621 *bis*, 623, (644), 938, 939, 940, 941 (Hel.), 472, 802 (Z.)
Cazanove, M., 900 (Misc.)
Celestino dos Santos, M., (66) (Misc.)
Cerquiera, A. de C., & de Vasconcellos A., 575 (K.A.)
Chabaud, 60 (Misc.)
Chagas, C., & Villela, E., 335 (S.S.)
Chamberlain, E. N., 742 (Pl.)
Chandler, A. C., & Rice, L., 804 (Fev.)
Chapèyrou, 682 (Misc.)
Charbonnel, M., 125 (Dys.)
Charles, E., 500 (Oph.)
Chastang, 35 (Misc.)
Chatellier, L., 180 (Ys.)
Chatterjee, G. C., 444 (Z.)
Chatterjee, H., 869 (K.A.)
Chatterji, K. K., 114 (Am.), 762 (Misc.)
Chaurand, G., & Diacono, H., 620 (Hel.)
Chawla, G. S., (746) (Pl.)
Cheinisse, L., 562, 977 (Mal.), 702 (S.S.)
Chelmonski, A., 126 *bis* (Dys.)
Chesterman, C. C., 694 (S.S.), 939 (Hel.)
Cheyne, W. H. W., 914 (Misc.)
China Medical Journal, 508 (Oph.)
Chiray, M., 901 (Misc.)
Choisser, R. M., 894 (Misc.)
Chopra, R. N., 763 (Misc.)
——, with Acton, 645 (Misc.)
——, with ——, & Boyd, 410 (Dys.)
——, & Ghosh, B. N., 668, (684) (Misc.)
——, Ghosh, S., Ghosh, B. N., & De P., 923 (Misc.)
——, & Napier, L. E., 845 (Misc.)
Choyce, C. C., 767 (B.R.)
Christeller, E., 127 (Dys.)
Christophers, S. R., 792, 793 *bis* (Z.)
——, & Harvey, W. F., 556 (Mal.)
——, with Schueffner & de Jonge, 551 (Mal.)
Christopherson, J. B., 221, 224, 940, 941, 943 (Hel.), 574 *bis* (K.A.)
——, with Semon, 104 (K.A.)
Chu, H. P., 221 (Hel.)
Chukri, H., with Delamare, 154 (Lep.)
Chun, J. W. H., 358, (365) (Pl.)
——, with Wu Lien Teh & Pollitzer, 365, (746) (Pl.)
Ciavaldini, J., 667 (Misc.)
Cifuentes Labastida, R., 246 (Hel.)
Cignolini, P., 562 (Mal.)
Cignozzi, O., 967 (Mal.)
Cilento, R. W., 799 (Z.)
Ciuca, M., 370 (Chl.)
Claassen, H. L., 288 (Der.)
Clapier, 176 (Ys.), 327 (S.S.)
——,with Beurnier, 181 *bis* (Ys.)
Clapier, P., 327 (S.S.)
Clark, T., 981 (Oph.)
Clarke, J. J., 351 (B.R.)
Cleland, J. B., 802 (Z.)
——, & Campbell, A. W., 649 (Misc.)
Cochran, S., 911 (Misc.)
Cohen, L. D., 988 (Oph.)
Cole, P., 730 (Dys.)
Coles, A. C., 346 (B.R.), 584 (Jaun.), 714 (Am.)
Collin, L., 981 (Oph.)
Colombo, F., (128) (Dys.)
Combey, J., (66) (Misc.)
Combier, V., & Murard, J., 707 (Am.)
Combiesco, D., 99 (K.A.)
——, with Dopter & Dumas, 411 (Dys.)
——, with Dumas, 122, 410 (Dys.)
——, Magheru, A., & Calalb, G., 722 (Dys.)
Comes, S., 303 (Mal.)
Concepcion, I., 672 (Misc.)
Coniglio, C., (644) (Hel.)
Connal, A., 447 (Z.), 509 (Misc.)
——, & Connal, S. L. M., (260), 632 (Hel.)
Connell, R. E. W., 355 (Bl.)
Connor, M. E., 585, 792 (Y.F.)
——, & Monroe, W. M., 586 (Y.F.), 792 (Z.)
Conseil, E., with Nicolle, 115, (415) (Dys.)
——, with ——, & Burnet, 804 (Und.)
——, with ——, & Cuénod, 979 (Oph.)
Coogle, C. P., with Maxcy, 551 (Mal.)
Cooling, L. E., 791 (Z.)
Cooper, A. T., & Vadala, A. J., 642 (Hel.)
Cooper, M. L., 597 (Lab.)
Coppin, H., 180 (Ys.), 636 (Hel.), (684) (Misc.)
Coppinger, W. V., 498 (Oph.)
Córdoba, S., (128) (Dys.)
Corlette, C. E., 918 (Misc.)
Corlett, W. T., 150 (Lep.)
Cornwall, J. W., (430) (Misc.), 474 (Z.)
——, & Lafrenais, H. M., 282 (Der.)
Cornwall, L. H., & Schmitt, G. P., 597 (Lab.)
Correa Netto, O., 830 (Lep.)
Corson, J. F., with Macfie, 945 *bis* (Hel.)
——, with Ingram, 41 (Misc.)
Cort, W. W., 220, 249, (260) (Hel.)
——, Ackert, J. E., Augustine, D. L., Payne, F. K., & Payne, G. C., 240 (Hel.)
——, & Yokogawa, S., 208 (Hel.)
Corvetto, A., 209 (Hel.), 752 (Misc.)
da Costa, A. C., & Silva, 113 (Am.)
Couba, L., 429 (Misc.)
Coulogner, (308) (Mal.)
Courmont, P., & Rochaix, A., 724 *bis* (Dys.)
Courtney, B. J., 630 (Hel.)
Couvy, L., 384 (Fev.)

Coward, K. H., with Drummond & Zilva, 763 (Misc.)
Cowdry, E. V., 789 (Z.)
Cozanet, 405 (Am.)
Cragg, F. W., 134 (R.F.), 388 (Fev.), 791, 798 (Z.)
——, & Swaminath, C. S., 798 (Z.)
Cramer, A., 222, 223 (Hel.)
Cramer, W., Drew, A. H., & Mottram, J. C., 854 (Misc.)
Crawford, J. H., 59 (Misc.)
Crichlow, N., 74 (Bl.)
Cros, L., & Frécus, F., 661 (Misc.)
Crowell, B. C., 699 (S.S.)
Cuénod, with Jamin, 290 (Der.)
——, with Nicolle & Conseil, 979 (Oph.)
——, & Solovief, P., 290 (Der.)
Cummins, S. L., 997 (Tb.)
——, with Macpherson & Leishman, 1005 (B.R.)
Cumpston, J. H. L., 13 (Misc.)
da Cunha, A. M., & Muniz, J., 444 (Z.)
Cunningham, J., (66), 893 (Misc.)
——, & Varadarajan, P. S., 865 *bis*, 872 (K.A.)
Cunningham, R. A., (1002) (Tb.)
Curasson, G., 31 (Misc.), 186, 187 (Tb.)
Curtis, W. L., & Curtis, M. E., 799 (Z.)
Cutter, R. K., 721 (Dys.)

D

van Dam, C., with Woensdregt, 965 (Mal.)
Damon, S. R., 78 (Avit.)
Daniels, C. W., 434 (B.R.)
Dargein & Plazy, 379 (Und.), 879 (R.F.)
Darling, S. T., 132 (R.F.), 248, 254 (Hel.), 551 (Mal.)
Das, P. N., 231 (Hel.)
David, 168 (B.R.)
David, J., 691 (S.S.)
Davies, A., 121 (Dys.)
Davis, C. N., 728 *bis* (Dys.)
Davis, H., 154 (Lep.)
Davis, L. C., with Kolmer & Jager, 200 (Tb.)
Davison, W. C., 714 (Dys.)
Dawson, A., & Smith, R. O. A., 516 (Misc.)
Day, H. B., 853 (Misc.)
De, M. N., 577 (K.A.)
De, P., with Chopra, Ghosh & Ghosh, 923 (Misc.)
De Eds, F., with Hanzlik, 597 (Lab.)
Dean, A. L., & Wrenshall, R., 160 (Lep.)
Defiel, F., 472 (Z.)
Dekester, M., & Martin, E., (430) (Misc.)
de la Barrera, J. M., with Kraus, 36 (Misc.)
Delamare, G., 9, 39, 757, 927 (Misc.), (373) (Chl.), 487, 834 (Lep.), 555 (Mal.)
——, & Alalou, 880 (R.F.), 908 (Misc.)
——, & Chukri, H., 154 *bis* (Lep.)
——, & Mouchet, A., 881 (Fev.)
——, & Noury, O., 42 (Misc.)
Delanoë, P., 428 (Misc.), 798 (Z.)
De la Paz, D., 957 (Hel.)
Delbreil, 960 (Mal.)
Delhaye, R., with Desoil, 466 *bis* (Z.)
del Rosario, S. V., & Lopez Rizal, L., 390 (Bb.), 736 (Chl.)
Denney, O. E., & Hopkins, R., 485 (Lep.)
——, with Kolmer, 832 (Lep.)
Denoyelle, with Ramond & Lautman, 708 (Am.)
Dentici, S., 307 (Mal.)
Dernby, K. G., & Näslund, C., 412 (Dys.)
Dershimer, F. W., 340 (Hel.)
Deschiens, R., 788 (Z.)
Desoil, P., & Delhaye, R., 466 *bis* (Z.)
Destefano, F., & Vaccarezza, R. F., 525 (B.R.)
Dévé, F., 226 *ter*., 228 *bis* (Hel.)
——, & Billiard, A., 226 (Hel.)
——, & Payenneville, J., 227 (Hel.)
Devoto, A., with Matta, 490 (Lep.)
Devoto, L., 75 (Pel.)
Dew, H. R., 622 (Hel.)
Diacono, H., 518 (Misc.)
——, with Chaurand, 620 (Hel.)
Diamantis, 624, (957) (Hel.)
Diénot, 53 (Misc.)
Digby, L., with Glynn & Jones, 1003 (B.R.)
v. Dijke, M. J., Bakker, C., & Hoesen, H. W., 608 (Misc.)
——, & Oudendal, A. J. F., 288 (Der.)
Dimmitt, P. S., with Levy, 845 (Misc.)
Djamil, M., 851 (Misc.)
——, with De Langen, 918 (Misc.)
Djémil, S., 879 (R.F.)
Dobell, C., 447 (Z.)
Dobreitzer, I. A., 357 (Pl.)
Docherty, J. F., & Burgess, E., 207 (Hel.)
Donaldson, S., 396 (Sc.)
Donatien, A., with Parrot, 105 (K.A.)
van Dongen, A., (978) (Mal.)
Doorenbos, W. B., with Keukenschrijver, 422 (Misc.)
Dopter, C., Dumas, J., & Combiesco, 411 (Dys.)
Douglas, M., with Castellani & Thomson, 657 *bis* (Misc.)
Drew, A. H., with Cramer & Mottram, 854 (Misc.)

van Driel, B. M., 50 (Misc.), 151, 484, 486 (Lep.), 397 (Sc.)
Drummond, J. C., & Zilva, S. S., 763, (520) (Misc.)
——, & ——, with Coward, 763 (Misc.)
Duba, 977 (Mal.)
Dubief, with Bordas & Tanon, 361 (Pl.)
Dubinsky, I. A., 747 (Ent.)
Dubois, A., 517, 668, 850 (Misc.)
Dubreuilh, W., 488 (Lep.)
Ducamp, Carrieu & Gueit, 143 (Jaun.)
Duff, D., 635 (Hel.)
Duffau, H. E., 374 (Ent.)
Dufourt, A., with Weill & Arloing, 80 (Avit.)
Duke, H. L., 309, 691 (S.S.)
——, with Peacock, 42 (Misc.)
Dumas, G., & Combiesco, D., 410 (Dys.)
Dumas, J., & Combiesco, D., 122(Dys.)
——, with Dopter & Combiesco, 411 (Dys.)
Dumont, J., 126 (Dys.)
Dunbar, B. H. V., 101 (K.A.)
Dunderdale, G., 230 (Hel.)
Dunn, L. H., 461, 463, 799 (Z.), 877 (R.F.)
du Noyer, R , with Langeron, 456 (Z.)
Dupuy, (430) (Misc.)
Durante, G., & Roy, J. N., 34 (Misc.)
Dutt, M. M., 845 (Misc.)
Dutta, A. C., 101 (K.A.)
Dyer, H., with Voegtlin, Smith & Thompson, 695 (S.S.)
Dyke, H. W., & Macfarlane, N. M., 282 (Der.)

E

East Africa Protectorate, 510 (Misc.)
Eastwood, E. H., 637 (Hel.)
Eckstein, F., 305 *bis* (Mal.)
Edwards, F. W., (479), 792, 795 (Z.)
Eguchi, S., 956 (Hel.)
Egypt, 504, 505 (Oph.)
Elders, C., 416 (Sp.)
Elkington, J. S. C., 14, 915 (Misc.)
Ellis, A. G., 56 (Misc.)
Elschnig, 986 (Oph.)
Embrey, H., 609 (Misc.), 818 (Sc.), 831 (Lep.)
Emile-Weil, P., & Isch-Wall, P., 592 (Lab.)
Emily, J., 977 (Mal.)
Eschbach, H., 401 (Am.)
Escomel, E., 110, 705 (Am.), 972 (Mal.)
Esguerra, C., 481 (Lep.)
Esquier, 71, 73 (Bl.)
——, & Godillon, 73 (Bl.)
Esserteau, 421 (Z.)
Eugling, M., 383 (Fev.)
Evans, A. M., 474, 793 (Z.)
Evers, H., 64 (Misc.)

F

Fabbri, G., 294, (308) (Mal.)
Faber, H. K., & Schussler, Jr., H., 577 (K.A.)
Fabre, R., (684) (Misc.)
Faculté de Médecine de Paris, 456 (Z.)
Fairley, K. D., (260) (Hel.)
Fairley, N. H., 227 (Hel.)
Falk, J., (308) (Mal.)
Fantham, H. B., 780 *bis* (Z.)
Farah, N., 579 (R.F.), 657 (Misc.)
Farani, A., (989) (Oph.)
Far Eastern Assoc. Trop. Med., 519, 551 (Misc.)
de Faria, G., & Pacheco, G., 719 *bis* (Dys.)
Faust, E. C., 137 (R.F.), 444 (Z.), (260) *bis*, 934 (Hel.)
——, with Meleney, 623, 942 (Hel.)
Federated Malay States, 301 (Mal.); 412 (Dys.), 513 (Misc.)
Feibel, B., 787 (Z.)
Felice, D., 590 (Lab.)
Feliciano, R. T., with Wells & Agcaoili, 429 (Misc.)
Ferguson, E. W., 798, 799 (Z.)
Fernando, A. S., 424 (Misc.), 508 *bis*, 984 (Oph.)
Fernbach, H., 299 (Mal.)
Ferré, (430) (Misc.)
Ferreira, C., 200, 998, 999, 1000 (Tb.)
Ferris, G. F., 795 (Z.)
Fidao, G., 704 (Am.), 970 (Mal.)
Fiessinger, N., 401 (Am.), (684) (Misc.)
Figdor, P., 846 (Misc.)
Figueira, L., with Bettencourt, 621 (Hel.)
——, with da Silva, 603 (Misc.)
Filippella, P., 561 (Mal.)
Filippini, (957) (Hel.)
De Finis, G., 906 (Misc.)
Fiorentini, A., 971 (Mal.)
Fischer, W., 500 (Oph.), 714 (Am.)
——, with Kleine, 317, 322 (S.S.)
Fleisher, M. S., & Wachowiak, M., 921 (Misc.)
Fletcher, T. B., 796 (Z.)
Fletcher, W., 301, 970 (Mal.), 513 (Misc.), 412 (Dys.), 1004 (B.R.)
——, & Visuvalingam, S. A., 970 (Mal.)
Flu, P. C., 251 (Hel.), 725 *bis* (Dys.)
Foley, H., with Parrot, 189 *bis* (Tb.)
——, with Sergent, Edm., 133 (R.F.)
——, with——, & Vialatte, 37 *bis* (Misc.)
——, with Sergent, Et., & Catanel, 560 (Mal.)

da Fonseca, O., with Terra, Torres, & Area Leao, 278 (Der.)
Fontoynont, 9, 10 (Misc.)
——, & Carougeau, 279 (Der.), 659 (Misc.)
——, & Salvat, P., 658 (Misc.)
——, with Salvat, 278 (Derm.)
Forbes, R. P., 559 (Mal.)
Forgues, M., 659 (Misc.)
Fornara, 655 (Misc.), (1002) (Tb.)
Fornara, P., 229 (Hel.)
Forrai, E., 415 (Dys.)
Forster, A. E., 985 (Oph.)
Forsyth, W. L., 24 (Misc.)
Fossati, V., with Grapiole & Palazzo, 584 (Jaun.)
de Fossey, M., with Le Noir, 714 (Am.)
——, with Rouzaud & Biscons, 848 (Misc.)
Fourneau, E., & Navarro-Martin, A., 329 (S.S.)
Fowler, H., 161 (Lep.)
Fox, H., 105 (K.A.), 178 (Ys.)
——, & Ochs, B. F., 178 (Ys.)
Fraga, C., 389 (Bb.)
França, C., 621 (Hel.)
——, & de Mello, F., 216 (Hel.)
Franchini, G., 103 (K.A.), 450 *sept.*, 787 *bis* (Z.)
——, with Laveran, 787 (Z.)
——, with Roubaud, (421) (Z.)
Francis, E., 43 (Misc.)
——, & others, 664 (Misc.)
Franco, E. E., 99 (K.A.)
Fraser, A. H., 576 (K.A.)
Fraser, A. M., 656 (Misc.)
Frécus, F., with Cros, 661 (Misc.)
Freund, R., with Rosenthal, 337, 700 (S.S.)
Freudenthal, F., (644) (Hel.)
Frew, J., with Macgregor, 112 (Am.)
Fry, A. S., 199 (Tb.)
Fuchs, B., 239 (Hel.)
Fukuhara, Y., 411 (Dys.)
Fukui, S., with Abe & Imai, 763 (Misc.)
Fulchiero, A., 564 (Mal.)
Fülleborn, F., 219, 224, 252 (260) (Hel.), 502 (Oph.), 916 (Misc.)
Funaioli, G., 70 (H.S.)
Fusco, P., 277 (Der.)
Fusco, G., & Patane, C. G., 365, 745 (Pl.)

G

van Gaasbeek, C. B., 489 (Lep.)
Gaehlinger, 703 (Am.)
Gaehlinger, H., (128) (Dys.)
Galli-Valerio, B., 944 (Hel.)
Galmozzi, F., 400 (Am.)
Gambier, A., 292 (Mal.)
Gambier, with Kerrest & Bouron, 132 (R.F.)
Gander, G., 465 (Z.)
Ganguly, S. K., 987 (Oph.)
Garcia, F., & Guevara, R., (430) (Misc.)
Garcia de Quevedo, L., 428 (Misc.)
Gardin, C., with Guillain, 204 (Hel.)
Gardner, A. D., 409 (Dys.)
Garin, C., 554, 976 (Mal.)
——, & Affre, 976 (Mal.)
Garrison, C. W., (308) (Mal.)
Gärtner, W., 51 (Misc.)
Gastinel, P., with Teissier & Reilly, 745 *bis* (Pl.)
Gastou & Tissot, 576 (K.A.)
Gaté, J., & Papacostas, G., 99 (K.A.)
Gautier, 31, 749 (Misc.), 626 (Hel.)
Gavião Gonzaga, A., 841 (Ys.)
Gazzola, M., with Orticoni, (415) (Am.)
Gendron, G., with Renault & Monier-Vinard, 571 (K.A.)
Geneesk, Tijdschr. v. Nederl.-Indië, 631 *bis* (Hel.)
de Gennes, L., with Joltrain, 362 (Pl.)
Gérard, P., with Mouchet & van Nitsen, 667 (Misc.)
Gesteira, M., 212 (Hel.)
Ghesquière, J., 471 (Z.)
Ghetti, G., 141 (Jaun.)
Ghose, S. N., 79 (Avit.)
Ghosh, B. N., with Chopra, 668, (684) (Misc.)
——, with Chopra, Ghosh, S. & De, 923 (Misc.)
Ghosh, E., 449, (479) (Z.)
Ghosh, S., with Chopra, Ghosh, B. N., & De, 923 (Misc.)
Giblin, W. E., 29 (Misc.), 72, (Bl.)
Gibson, C. C. G., 293 (Mal.)
Giemsa, G., 590 (Lab.)
Giglioli, G., 70 (H.S.), 418 (421) (Z.)
——, with Noc, 420 (Z.)
Gildemeister, E., & Herzberg, K., 739 (Chl.)
Gill, C. A., 555 (Mal.)
Gimlette, J. D., 351 (B.R.)
Gioseffi, M., 964 (Mal.)
Girard, with Bouffard, 374 (Ent.)
Giraud, P., with d'Astros & Raybaud, 875 (K.A.)
Girbal, E., 204 (Hel.), 381 (Und.)
de Gironcoli, F., (260) (Hel.)
Giuliani, S., 745 (Pl.)
Glynn, E. E., & Digby, L. with Jones, H. W., 1003 (B.R.)
Gobert, E., 919 (Misc.)
——, & Anderson, C., 620 (Hel.)
Godillon, with Esquier, 73 (Bl.)
Godoy, A., & Pinto, C., 474 (Z.), 557 (Mal.)
Goeckel, H. J., 597 (Lab.)
Goldberger, J., 78 (Pel.)
——, with Wheelor, 77 (Pel.)

Gomes, Junior, F. S., with Gonzaga, 259 (Hel.)
Gomez, A., with Peralta, M'Acormick, Carvajal, Pradilla Gonzalez, Valdivieso, Serpa, & Ardila Gomez, 911 (Misc.)
Gomez, L., Basa, J. A., & Nicolas, C., 157 (Lep.)
——, Navarro, R., & Kapauan, A. M., 666 (Misc.)
Gonsalves, M., & Haslam, J. F. C., 998 (Tb.)
Gonzaga, A. G., 363 (Pl.)
Gonzaga, O., & Gomes, Junior, F. S., 259 (Hel.)
Gonzales, E., 49 (Misc.)
Gonzalez Martinez, I., (430) (Misc.)
Goodhart, G. W., 405 (Am.)
Goodman, H., 287 (Der.)
——, & Traub, E. F., 842 (Ys.)
Goodpasture, E. W., 739 *bis* (Chl.), 832 (Lep.), 836 (Ys.)
——, & de Leon, W., 843 (Ys.)
——, with Sellards, 836 *bis* (Ys.)
——, with ——, & de Leon, 836 (Ys.)
Goonawardena, J. A. S., 841 (Ys.)
Gordon, J., 118 (Dys.), 558 (Mal.)
Gordon, R. M., 252, 956 (Hel.), (421), 460 (Z.)
Gorodkowa, A. A., with Zlatogoroff & Karetnikowo, 717 (Dys.)
Goss, M., 367 (Chl.)
Goto, K., 805 (Fev.)
Gougerot, H. 164 (Lep.), 290 (Der.)
Gouvernement Général de l'Afrique Occidentale Française, 19 (Misc.)
Gouzien & Abbatucci, 484 (Lep.)
Gouzien, P , & others, 604 (Misc.)
Gow, A., 378 (Und.)
Grabham, M. C., (66) (Misc.)
Graham, J. D., 988 (Oph.)
Gralka, R., 818 (Sc.)
Granjux, (430) (Misc.)
Grapiole, F. L., Fossati, V., & Palazzo, R., 584 (Jaun.)
Grassi, B., 790 *ter*. (Z.)
Gravellat, with Abbatucci, 995 (Tb.)
Graves, M. L., 426 (Misc.)
Gregg, A. L., 910 (Misc.)
——, with Manson-Bahr, Low, & Pratt, 705 (Am.)
de Gregoriis, A., 202 (Tb.)
Grenada, 843 (Ys.)
Greval, S. D. S., 621 (Hel.)
Griffin, R. G., 690 (S.S.)
Gros, J., & Moreno, R., 796 (Z.)
Grossule, 51 (Misc.)
Grovas, P. P., 882 (Y.F.)
Grúsz, F., 798 (Z.)
Gueit, with Ducamp & Carrieu, 143 (Jaun.)
Guerra, A., with Hoffmann, 937 (Hel.)
Guevara, R., with Garcia, (430) (Misc.)
Guglielmetti, J., with Arrillaga, 63 (Misc.)
Guiart, J., 637 (Hel.)
Guillain, G., & Gardin, C., 204 (Hel.)
Guimarães, A., 722 (Dys.)
Guimarais, A., 663 (Misc.)
——, with de Mello, 663 (Misc.)
——, with ——, & De Sousa, 660 (Misc.)
Guillermin, with Mouchet, 581 (R.F.)
Gunasekara, S. T., with Norris, Jacocks, Winsor & Keyt, 342 (Hel.)
Gunn, J. A., & Marshall, D. G., 973 (Mal.)
Günther, B., 300 (Mal.)
Gupta, B. M., 577 (K.A.)
Gupta, B. M. D., with Knowles & Napier, 781 (Z.), 866 (K. A.)
Gupta, S. A. S. B. M. D., with Knowles & Acton, 965 (Mal.)
von Gutfeld, F., 595 (Lab.)
Gutierrez, P. D., 175 (Ys.)
Guttmann, R. A., with Bergé, Bénard & Roberti, 227 (Hel.)
Guyénot, E., Naville, A., & Ponse, K., 449 (Z.)

H

Haase, M., Hall, E. R., & Marshall, C. H., 279 (Der.)
Hacker, H. P., 457 (Z.)
Haehlinger, H., (128) (Dys.)
Hage, (644) (Hel.), 703 (Am.)
Hagen, S., 986 (Oph.)
Hajos, K., 638 (Hel.)
Hall, A. H., 939 (Hel.)
Hall, E. R., with Haase & Marshall, 279 (Der.)
Hall, M. C. ,206, 255, 935 (Hel.)
——, & Shillinger, J. E., 628 (Hel.)
Hamerton, A. E., 602 (Misc.)
Hamilton-Browne, E., 658 (Misc.)
Hampton, G. G., 256 (Hel.)
——, with Leach, 642 (Hel.)
——, with Nicholls, 256 (Hel.)
Hanel, G., 299 (Mal.)
Hanzlik, P. J., & De Eds, F., 597 (Lab.
Hara, C., with Tsurumi, Sakamoto Imai & Aoki, 743 (Pl.)
Harnett, W. L., (261) (Hel.)
Harold, C. H. H., 516 (Misc.)
Harper, P., 162, 489 (Lep.)
Harries, D. J., (66) (Misc.)
Harrison, L., 462 (Z.)
Hart, E. B., Steenbock, H., & Lepkovsky, S., 398 (Sc.)
Hartendorp, A. v. H., (520) (Misc.)
Hartmann-Keppel, G. L., 575 873, (K.A.), 927 (Misc.)
Harvard University, 8 (Misc.)

Harvey, W. F., 593, 600 *bis* (Lab.)
——, & Acton, H. W., 32 (Misc.)
——, with Christophers, 556 (Mal.)
——, & Iyengar, K. R. K., 595, 596 (Lab.)
Hashimoto, T., & Ogiwara, H., 472 (Z.)
Haslam, J. F. C., with Gonsalves, 998 (Tb.)
Hasseltine, H. E., 485 (Lep.)
Hasson, J., 164 (Lep.)
Hasui, N., 816 (Bb.)
Hata, S., 610 (Misc.)
Hatori, J., 386 (Fev.)
Hauduroy, P., 124 (Dys.)
——, & Arsimoles, (732) (Dys.)
Haughwout, F. G., 781 (Z.)
Hayshi, S., 237, 252 (Hel.)
Hayashi, T., 816 (Bb.)
Hazebroek, F. E. A., 653 (Misc.)
Heckenroth, F., 31 (Misc.), 307 (Mal.)
——, & Nogue, 280 (Der.)
Hegner, R. W., 438, 443 (Z.), 751 (Misc.), 780, 783 (Z.)
——, & Becker, E. R., 440 (Z.)
Hehir, P., 52, (66) (Misc.), 366 (Chl.)
den Heijer, J. K., (66) (Misc.)
Heinemann, H., 31, 514 (Misc.), 201 (Tb.)
Hemsen, 629 (Hel.)
Henry, 429 (Misc.)
Henry, T. A., 205 (Hel.)
——, & Brown, H. C., 782 (Z.)
D'Herelle, E., 740 (Chl.)
Hermans, E. H., 653 (Misc.)
Heron, G. W., 960 (Mal.)
Herzberg, K., with Gildemeister, 739 (Chl.)
Hess, J. H., Moore, J. J., & Calvin, J. K., 81 (Avit.)
Hesse, E., with Leger, 788 (Z.)
Hesselbach, K., 325, 702 (S.S.)
Hetherington, D. C., 628 (Hel.)
Hewetson, W. M., 758 (Misc.)
Heymann, 704 (Am.)
van Heyningen, A. K., (520) (Misc.)
Hill, L., & Campbell, J. A., 761 (Misc.)
Hiltmann, E., with Bentmann & Köhler, 897 (Misc.)
Hirai, I., 714 (Am.)
Hirai, S., 391 (Bb.)
Hirst, L. F., 359, 360 (Pl.)
Hirst, S., 473 (Z.)
Hodgson, E. C., 596 (Lab.)
Hoesen, H. W., 361 (Pl.)
——, with v. Dijke & Bakker, 608 (Misc.)
Hoffman, C. T., with Palmer, 393 (Bb)
Hoffman, F. L., 54 (Misc.), 152 (Lep.)
Hoffmann, W. H., 130 *bis* (R.F.), 147 *quat.* 586 (Y.F.), 26, 56, 666, 851 (Misc.), 219 (Hel.), (421), 471, (479) 798 (Z.)
Hoffmann, Guerra, A., 937 (Hel.)
Hogue, M. J., 441 (Z.), 579 (R.F.)
——, & van Winkle, C., 784 (Z.)
Hoki, R., with Inada, Ido, Kaneko, Ito, Wani & Okuda, (144) (Jaun.)
——, with ——, ——, Ito & Wani, (144) (Jaun.)
Holt, W. L., 805 (Fev.)
Hone, F. S., 807 *bis* (Fev.)
Honeyman, S., (430) (Misc.)
Honig, P. J. J., 685 (B.R.)
van Hoof, L., with van den Branden, 43, 45 (Misc.), 177 (Ys.), 329, 698, 702 (S.S.), 934 (Hel.), 959 (Mal.)
Hooton, A., 423, 852 (Misc.)
Hopkins, R., with Denney, 485 (Lep.)
Höppli, R., (520) (Misc.)
Hornus, P., 375 (Ent.)
Horsley, Jr., J. S., 564 (Mal.)
Horta, P., with Langeron, 280 (Der.)
Houillon & Bauvallet, 882 (Y.F.)
Houssiau, 54 (Misc.)
Howard, A., Simonsen, J. L., & Anderson, L. A. P., 904 (Misc.)
Howard, H. J., & Li, T. M., 508 (Oph.)
Huchard, G. L., 30 (Misc.)
——, with Leger, 188 (Tb.)
——, with ——, & Baury, 426 (Misc.)
——, with Noc, 186 (Tb.)
Hudellet, G., 27, 927 *bis* (Misc.), 189 (Tb.), 234 (Hel.), 289 (Der.), 506 (Oph.)
——, with Lhuerre, 654 (Misc.)
——, with Nogue & Leger, 428 (Misc.)
Hudson, N. P., 117 (Dys.)
Huizenga, L. S., 580 (R.F.)
Humphreys, L., with Hunt, 919 (Misc.)
Hunt, D., & Humphreys, L., 919 (Misc.)
——, & Johnson, A. L., 840 (Ys.), 955 (Hel.)
Huot, 749 (Misc.)
Huppenbauer, K., 712 (Am.)
Hutchison, R., 627 (Hel.)
Hutchison, H. S., with Murphy, S. J., 48 (Misc.)
Hylkema, B., 364 (Pl.)
Hyvert, R., 927 (Misc.)

I

Iacono, I., 429, (430) (Misc.), 738 (Chl.)
Ibuki, T., with Okada, Sakurai & Kabeshima, 815 (Bb.)
Ido, Y., with Inada, Kaneko, Hoki, Ito, Wani & Okuda, (144) (Jaun.)
——, with ——, Hoki, Ito & Wani, (144) (Jaun.)
Ignacio Uribe, J., 481 (Lep.)
Ihle, J. E. W., 239 (Hel.)
Ikeda, S., 209 (Hel.)
Ikuchi, K., 816 (Bb.)

Ilowaisky, S. A., 114 (Am.)
Imai, I., with Abe & Fukui, 763 (Misc.)
Imai, M., with Tsurumi, Hara, Sakamoto & Aoki, 743 (Pl.)
Inada, R., 141 (Jaun.)
——, Ido, Y., Hoki, R., Ito, H., & Wani, H., (144) (Jaun.)
——, Ido, Y., Kaneko, R., Hoki, R., Ito, H., Wani, H., & Okuda, K., (144) (Jaun.)
Inami, H., 788 (Z.)
Indian Journal of Medical Research, (261) (Hel.)
Indian Med. Gaz., 92 (K.A.)
Ingram, A., (261) (Hel.)
——, & Corson, J.F., 41 (Misc.)
——, & Macfie, J. W. S., 461 *bis* (Z.), 654 (Misc.)
——, with Macfie, 18 (Misc.), 456 (Z.)
Ingram-Johnson, R. E., 299 (Mal.)
Ioff, I., 559 *bis* (Mal.), 588 (Lab.)
——, with Kitaeff, 977 (Mal.)
——, & Rumjanzew, W., 559 (Mal.)
Iraq, 988 (Oph.)
Iriye, E., 394 (Bb.)
Iriye, H., 438 (Z.)
Isaac-Krieger, K., & Löwenberg, W., 299 (Mal.)
Isaacs, R , 226 (Hel.)
Isch-Wall, P., with Emile-Weil, 592 (Lab.)
Ishiwara, K., & Ogata, N., 809 (Fev.)
Isobé, M., 225, 943 *ter*. (Hel.)
Ito, H., with Inada, Ido, Hoki & Wani, (144) (Jaun.)
——, with ——, ——, Kaneko, Hoki, Wani & Okuda, (144) (Jaun.)
Ito, S., (165) (Lep.)
Iyengar, K. R. K., 873 (K.A.)
——, with Harvey, 595, 596 (Lab.)
Izar, G., 111, 114 (Am.)
Izawa, T., with Matsuo, 119 (Dys.)

J

Jacocks, W. P., with Norris, Winsor, Gunasekara & Keyt, 342 (Hel.)
Jager, R., with Kolmer & Davis, 200 (Tb.)
Jame, 26 (Misc.)
Jame, L., 193 (Tb.)
Jamin & Cuénod, 290 (Der.)
Jamot, E., 689 (S.S.)
Jancou, A., 847 (Misc.)
Janin, F., 480, 492 (Lep.)
Jansen, B. C. P., 814 *bis* (Bb.)
Japha, A., (261) (Hel.)
Jausion, H., 125 (Dys.)
Jegat, Y., with Lenoble, 401 (Am.)
Jalambi, R., 108 (Am.)
Jemma, R., 872, 875 (K.A.)
Jenkins, C. F., 930 (B.R.)
Jennissen, J. A. M. J., 609 (Misc.)
Jepps, M. W., 781 (Z.)
Jettmar, H. M., 358 (Pl.)
Jimbo, K., (261) (Hel.)
Joff, I., 588 (Lab.) See also under Ioff.
Joffick, S. D., 911 (Misc.)
Johnson, A. L., with Hunt, 840 (Ys.), 955 (Hel.)
Johnson, W. B., & Lloyd, L., 468, 794 (Z.)
Johnston, T. H., 462 (Z.)
Jojot, C., 316 (S.S.)
Joltrain, E., & de Gennes, L., 362 (Pl.)
——, with Abrami & Widal, (520) (Misc.)
Jones, H. W., with Glynn & Digby, 1003 (B.R.)
Jonescu, A. P., 579 (R.F.)
de Jong, D. A., 214 (Hel.)
de Jonge, with Schueffner & Christophers, 551 (Mal.)
José Quintini, M., 214 (Hel.)
Joseph, M., with Boyd, 65 (Misc.
Jouenne, 280 *quin*. (Der.)
Joukowsky, A., with Yakimoff & Schirwind, (431), 927 (Misc.)
Journal des Praticiens, 977 (Mal.)
Journal of Laboratory & Clinical Medicine, 597 (Lab.)
—— of Tropical Medicine & Hyg., 56 (Misc.)
Jouve, A., with Rolland, 79 (Avit.)
Joyeux, C., 615, 625, 957 (Hel.)
Judd, F. H., 497 (Oph.)
Jukov, N., Marzinowsky, V., & Sutchkova, O., 961 (Mal.)
Jungbluth, J., 561 (Mal.)

K

Kabeshima, H., with Okada, Sakurai & Ibuki, 815 (Bb.)
Kabeshima, T., 369 *bis*, (740) *bis* (Chl.)
Kagoshima, S., with Ogata, Kawakita, Suzuki, & Oka, 816 (Bb.)
Kaiser, L., 478 (Z.)
Kaku, T., 805 (Fev.)
Kamada, R., 617 (Hel.)
——, with Usami, 205, 237 (Hel.)
Kampman, A., (520) (Misc.)
Kanai, S., 121 (Dys.)
Kandelaki, S., 385 (Fev.)
Kaneko, R., & Okuda, K., (144) (Jaun.)
——, with Inada, Ido, Hoki, Ito, Wani & Okuda (144) (Jaun.)
Kanter, H., (260) (Hel.)
Kapauan, A. M., with Gomez & Navarro, 666 (Misc.)
Kapur, D. D., 983 (Oph.)
Karetnikowa, W. W., with Zlatogoroff & Gorodkowa, 717 (Dys.)

Kasai, K., 581 (R.F.), (732) (Dys.), 886 (Jaun.)
Katayama, T., 143 (Jaun.)
Katsunuma, S., 626 (Hel.)
Kauntze, W. H., 510 (Misc.)
Kawakami, Z., 232 (Hel.)
Kawakita, S., with Ogata, Suzuki, Kagoshima & Oka, 816 (Bb.)
Kawamura, R., 810 (Fev.)
Käyser, J. D., 31 (Misc.)
Kazama, Y., 214, 220, (644) *bis* (Hel.)
Keane, G. J., 650 (Misc.)
Kehrer, J. K. W., (520) (Misc.)
Kelly, F. L., 808 (Fev.)
Kendrick, J. F., 341 (Hel.)
Kennan, R. H., 50 (Misc.)
Kennedy, J. C., 874 (K.A.)
Keramopoulos, E., 61 (Misc.)
Kernéis, 11, 44 (Misc.)
——, & Baujean, (520) (Misc.)
—— & Morin, 74 (Bl.)
——, with Noc, 31 (Misc.)
Kerr, W. M., 608 (Misc.)
Kerrest, J., Gambier, A., & Bouron, A., 132 (R.F.)
Keukenschrijver, N. C., 936 (Hel.)
——, & Doorenbos, W. B., 422 (Misc.)
Keyser, D. L., 597 (Lab.)
Keyt, F., with Norris, Jacocks, Winsor, & Gunasekara, 342 (Hel.)
Khalil, M., 75 (Pel.), 220, 935, 937 (Hel.)
——, & Lee, C. U., 940 (Hel.)
Khan, G. P., (748) (Ent.)
Kiefer, K. H., with Bach, 453 (Z.)
Kihn, B., 392 (Bb.)
Killick, C., 986 (Oph.)
King, H., with Acton, 59 (Misc.)
Kireeff, M., 578 (R.F.)
Kirschbaum, W., 975 (Mal.)
——, with Mühlens, 295 (Mal.)
Kirschner, L., 974 *bis* (Mal.)
Kitaeff, F. J., 114 (Am.)
——, & Ioff, I., 977 (Mal.)
Kleine, F. K., 687 (S.S.)
——, & Fischer, W., 317, 322 (S.S.)
Kligler, I. J., 135 (R.F.), 933 (Hel.)
Klotz, O., & Lindenberg, H., 574 (K.A)
Knipping, H. W., 922 (Misc.)
Knowles, R., 755 (Misc.)
——, Acton, H. W., & Gupta, S.A.S.B.M.D., 965 (Mal.)
Knowles, R., Napier, L. E., & Gupta, B.M.D., 781 (Z.), 866 (K.A.)
Kobayashi, H., 937 (Hel.)
Kodama, H., & Takeda, H., 372 (Chl.)
Kofoid, C. A., 248 (Hel.)
——, Boyers, L. M., & Swezy, O., 713 (Am.)
——, Kornhauser, S. S., & Swezy, O., 592 (Lab.)
——, & Swezy, O., 713, 1002, (Am.)
Kofoid, C. A., & Tucker, J. P., 248 (Hel.)
Köhler, O., with Bentmann & Hiltmann, 897 (Misc.)
Koino, S., 235, 636 (Hel.)
Kolmer, J. A., & Denney, O. E., 832 (Lep.)
——, Davis, L. C., & Jager, R., 200 (Tb.)
Konsuloff, S., 305 (Mal.)
Ko-Ran, 369 (Chl.)
Korenchevsky, V., 815 (Bb.)
Kornhauser, S. S., with Kofoid & Swezy, 592 (Lab.)
Korns, J. H., 62 (Misc.)
Korteweg, P. C., 762 (Misc.)
Korteweg, 962 (Mal.)
de Korte, W. E., 851 (Misc.)
Korthoff, G., 852 (Misc.)
Kosaka, K., 211, 938 (Hel.)
Koshiwo, S., with Muto, 211 (Hel.)
Koskinas, G., with Sträussler, 977 (Mal.)
Kouwenaar, W., 674, 917 (Misc.), 884 (Jaun.)
Kraus, R., 8, 427 (Misc.), (376) (Ent.), 478 (Z.)
——, & de la Barrera, J. M., 36 (Misc.)
——, & Botelho, R., 476 *bis* (Z.)
Kreuser, 717 (Dys.)
Krikorian, K. S., with Buxton, 212 (Hel.)
Krishnan, K. V., with Ayyar, T. S., 98 (K.A.)
Kritsch, N., with Barykin, 661 (Misc.)
Kubo, N., 610 (Misc.)
Kuenen, W. A., 405 (Am.), 437 (Z.)
Kuhle, W., 719 (Dys.)
Kuijer, A., 22 (Misc.)
Kulescha, G. S., & Titowa, N. A., 578 (R.F.)
Kuno, Y., 683 *bis* (Misc.)
Kusumbeker, G. C., (496) (Lep.)

L

van Laaren, G. F., 293 (Mal.)
Labbé, M., 569 (K.A.)
Labernadie, V. G. F., & Peyre, E. L., 909 (Misc.)
Lachaume & Tournier, 228 (Hel.)
Lacroix, A., with Montpellier, 234, 633 (Hel.)
Lacroix, A., with Raynaud & Montpellier, 282, 285 (Der.)
Lafrenais, H. M., with Cornwall, 282 (Der.)
Lagrange, E., 618 (Hel.), 807 (Fev.)
Laigret, 633 (Hel.)
—— & Lefrou, 28 (Misc.)
Laigret, J., with Blanchard & Lefrou, 142, 582 (Jaun.)
Lake, G. C., 206 (Hel.), 380 (Und.)

Lal, R. B., 975 (Mal.)
Lama, A., 496 (Lep.)
Lambert, R. A., 577 (K.A.)
Lambert, S. M., 641 (Hel.), 733 (Sp.)
Lamborn, W. A., 470 (Z.)
Lambright, G. L., 111 (Am.)
Lampe, P. H. J., (373) (Chl.)
Lämpe, 728 (Dys.)
Lamoureux, A., 828 (Lep.)
Lamson, P. D., & McLean, A. J., 922 (Misc.)
Lancelin, R., 238 (Hel.)
Lancet, 911 (Misc.)
Landeman, E., with Muir, Roy & Santra, 826 (Lep.)
Lane, C., 208, 638, 639, 947 (Hel.), 771 (Mal.)
——, & Low, G. C., 625 (Hel.)
de Langen, C. C., 25 (Misc.)
de Langen, C. D., 151 (Lep.), 391 (Bb.), 425, 648 (Misc.), 966 (Tb.)
——, & Djamil, M., 918 (Misc.)
——, & van Loon, F. H., 388 (Fev.)
Langeron, M., 279 (Der.), 306 (Mal.), 658, 659 (Misc.)
——, & du Noyer, R., 456 (Z.)
——, & Horta, P., 280 (Der.)
Lantuéjoul, P., with Lemierre, 251 (Hel.)
Lanz, O., (261) (Hel.)
Laoh, P., 561 (Mal.)
Larde y Arthes, C. R., 793 (Z.)
Larrousse, F., 795, 800 (Z.)
Lasnet, 755 (Misc.), 993 (Tb.)
——, & Trabaud, (1002) (Tb.)
Lautman, with Ramond & Denoyelle, 708 (Am.)
Lavandero, R., 745 (Pl.)
Laveran, A., & Franchini, G., 787 (Z.)
Leach, C. N., 255 (Hel.)
——, & Hampton, G. G., 642 (Hel.)
Le Bas, G. Z. L., 215 (Hel.)
Lebedev, D., 947 (Hel.)
Leber, A., 999 (Tb.)
Le Bourdellès, 39 (Misc.)
——, with Berthélemy, 374 (Ent.)
Lecercle, (66) (Misc.)
Leclerc, H., (261) (Hel.), 828 (Lep.)
Le Comte, A., 805 (Fev.)
Le Dantec, 849 (Misc.)
Le Dantec, A., 26 (Misc.)
Ledingham, J. C. G., 665 (Misc.)
Le Dentu, R., 969 (Mal.)
Lee, C. U., with Khalil, 940 (Hel.)
Le Fanu, G. E. H., & O'Brien, A. J. R., 580 (R.F.)
Lefebvre, A., & Baillat, (261) (Hel.)
Lefrou, 693 (S.S.)
——, with Blanchard, 138 *bis*, 202, 878 (R.F.), 328 (S.S.), 353 (Bl.), 439 (Z.), 602, 658 (Misc.)
——, with ——, & Laigret, 142, 582 (Jaun.)
Lefrou, with Laigret, 28 (Misc.)
——, & Ouzilleau, F., 327, 329, 691 (S.S.)
Legendre, J., 184 (Tb.), 461 (Z.)
——, & Louis, J., 791 (Z.)
Leger, A., 788 (Z.)
Leger, L., & Hesse, E., 788 (Z.)
Leger, M., 70 (H.S.), 247, 619 (Hel.), 444, 824 (Z.), 280 (Der.), 824 (Lep.)
——, & Baury, A., 43, 44 (Misc.), 291 (Mal.), 364, (365), 742 *bis*, 745 (Pl.), 615 (Hel.)
——, & Bédier, E., 139 (R.F.), 297, 306, 971, 976 *bis* (Mal.), 445, 446, 447 (Z.), 939 (Hel.)
——, ——, & Baury, A., 292, 555 (Mal.)
——, with Boulay, 492 *bis*, 493 (Lep.)
——, & Huchard, G., 188 (Tb.)
——, ——, & Baury, A., 426 (Misc.)
——, & Lheurre, 362, 744 (Pl.)
——, & Nogue, M., (165) (Lep.), 960 (Mal.)
——, with ——, & Hudellet, 428 (Misc.)
——, & Pezet, O., 188 (Tb.)
——, Pinaud, J., & Bédier, E., 555 (Mal.)
——, with Reynaud, 619 (Hel.)
Leichtentritt, B., & Zielaskowski, M., 337 (S.S.)
Leiper, R. T., 85, 625, 857 (Hel.)
Leishman, W. B., with Macpherson & Cummins, 1005 (B.R.)
Leitao, A. do N., 609 (Misc.)
Leiva, L., 104 (K.A.)
——, with Sellards, 400, 402 (Am.)
Lejeune, E., 41 (Misc.), 74 (Bl.)
Lemaire, G., with Sergent, Edm., Béguet, Parrot, & Vérité, 667 (Misc.)
Lemierre, A., & Lantuéjoul, P., 251 (Hel.)
Lemoine, P., with Valois, 987 (Oph.)
Lenoble, E., & Jegat, Y., 401 (Am.)
Le Noir & de Fossey, M., 714 (Am.)
Leon, N., 792 (Z.)
De Leon, W., with Goodpasture, 843 (Ys.)
——, with ——, & Sellards, 836 (Ys.)
Lepkovsky, S., with Hart & Steenbock, 398 (Sc.)
Le Roy des Barres, A., 711 (Am.), 729 (Dys.)
Lessa, G., 917 (Misc.)
Levaditi, C., & Nicolau, S., 7 *quat.*, 680, 847, 910, 925 *bis* (Misc.)
Levitt, M. J., 486 (Lep.)
Levy, M. D., 653 (Misc.)
——, & Dimmitt, P. S., 845 (Misc.)
Lewis, J., 763 (Misc.)
Lhuerre, 282 (Der.), 365 (Pl.)
——, & Hudelet, G., 654 (Misc.)
——, & Leger, M., 744 (Pl.)

Lhuerre, with Leger, 362 (Pl.)
Lloyd, I. H., 806 (Fev.)
Lloyd, L., with Johnson, 468 (Z.)
Li, T. M., 981 (Oph.)
——, with Howard, 508 (Oph.)
Libby, W. E., 623 (Hel.)
Lichtenstein, A., 408, 719 (Dys.), 669 (Misc.)
Lindenberg, A., 576 (K.A.)
Lindenberg, H., with Klotz, 574 (K.A.)
Lins, A., 116, 719 (Dys.)
Lins, A. E. E., 408 (Dys.), 788 (Z.)
Liotta, D., 819 (Sc.)
de Lint, J. G., (496) (Lep.)
Lisbonne, M., & Carrère, L., 726 (Dys.)
Lister, A. E. J., 988 (Oph.)
Lister, S., 607 (Misc.)
Liston, W. G., 364 (Pl.), 596 (Lab.)
Little, E. M., 413 (Dys.)
Lloyd, I. H., 806 (Fev.)
Lloyd, L., with Johnson, 468, 794 (Z.)
Logan, A. H., 449 (Z.)
Lombardo, G., 362 (Pl.)
van Loon, F. H., 34, 601, 924 (Misc.)
——, with de Langen, 388 (Fev.)
Lopes, J. B., 217, 218 (Hel.)
Lopez-Lomba, J., 819 (Sc.)
——, & Randoin, 818, *bis* (Sc.)
Lopez Rizal, L., with del Rosario, 390 (Bb.) 736 (Chl.)
Lorentzen, W., 715 (Dys.)
Lotka, A. J., 298 *bis* (Mal.)
——, with Sharpe, 298 (Mal.)
Loughnan, W. F. M., 850 (Misc.)
Louis, J., with Legendre, 791 (Z.)
Louwerier, J., 989 (Oph.)
Low, C. W., (66) (Misc.)
Low, G. C., 902 (Misc.)
——, with Lane, 625 (Hel.)
——, & Manson-Bahr, P., 323 (S.S.)
——, & ——, with others, 702 (S.S.)
——, with ——, Pratt & Gregg, 705 (Am.)
Low, G. C., & Newham, H. B. G., 499 (Oph.)
Löwenberg, W., with Isaac-Krieger, 299 (Mal.)
Ludlow, A. I., 706 (Am.)
Luengo, E., & de Buen, S., 698 (S.S.)
——, with Luengo & de Buen, 99 (K.A.)
Luengo, P., de Buen, S. & Luengo, E., 99 (K.A.)
Lundsgaard, K. K. K., 628 (Hel.)
Lustberg, S. R., & Birchett, J. A. K., 77 (Pel.)
Lynch, K. M., 287 (Der.), 441, 454, 788 (Z.)
Lyon, Jr., M. W., 590 (Lab.)
Lyon, M. W., & Trager, V. B., 597 (Lab.)

M

M'Acormick, D. D., with Peralta, Carvajal, Pradilla Gonzalez, Gomez, Valdivieso, Serpa & Ardilla Gomez, 911 (Misc.)
MacCallan, A. F., 504, 505 (Oph.)
MacCallum, W. G., & Oppenheimer, E. H., 847 (Misc.)
McCartney, J. E., & Olitsky, P. K., 723 (Dys.)
McCollum, E. V., with Shipley & Simmonds, 394 (Bb.)
——, & Simmonds, N., 81 (Avit.)
McConnell, G., 564 (Mal.)
McConnell, R. L., 904 (Misc.)
McConnel, S. V., with Tebbutt, (431) (Misc.)
McCoy, G. W., 365 (Pl.)
McDonagh, J. E. R., 624 (Hel.)
McDonald, J. D., 788 (Z.)
McDonald, W. M., 184 (Tb.)
MacFarlane, H. N., 921 (Misc.)
Macfarlane, N. M., with Dyke, 282 (Der.)
Macfie, J. W. S., 10 (Misc.), 471, 792 *bis*, 793 (Z.)
——, & Corson, J. F., 945 *bis* (Hel.)
——, & Ingram, A., 18 (Misc.). 456 (Z.)
——, with Ingram, 461 *bis*, 456 (Z.), 654 (Misc.)
MacGillivray, A., 986 (Oph.)
McGrath, M. J., with Bolton, 720 (Dys.)
MacGregor, A. S. M., & Frew, J., 112 (Am.)
Machado, R., 429 (Misc.)
MacHutchison, G. B., (978) (Mal.)
MacKenna, R. W., 351 (B.R.)
M'Kendrick, A. G., 906 (Misc.)
Mackenzie, J., 473 (Z.)
Mackenzie, A. J., 317, 702 (S.S.)
Mackie, F. P., 49 (Misc.), 92 (K.A.)
——, & Patni, H. C., 871 (K.A.)
Mackie, T. J., 370 (Chl.)
McKinley, E. B., (415) (Dys.)
Mackinnon, M., 915 (Misc.)
McLean, A. J., with Lamson, 922 (Misc.)
MacNeal, W. J., 78 (Pel.)
Macpherson, W. G., Leishman, W. B., & Cummins, S. L., 1005 (B.R.)
Macrae, D. M., 967 *bis* (Mal.)
Macotta, 96 (K.A.)
McVail, J. B., 206, 250, 251 (Hel.)
Madras, 101 (K.A.), 893 (Misc.)
de Magalhaes, P. A., (989) (Oph.)
Magheru, A., with Combiesco & Calalb, 722 (Dys.)
Magliulo, A., 666 (Misc.)
Magnenot, C., 390 (Bb.)
Magrou, J., with Nicolle, 166 (B.R.)
Majocchi, D., 800 (Z.)

Malaria-Commissie voor Noordholland, 962 (Mal.)
Mallannah, S., 487, 834 (Lep.), 580 (R.F.)
Mallardi, M., 100, 569 (K.A.)
——, with Nasso, 571 (K.A.)
Malone, R. H., 592 (Lab.)
Manoukhine, I. I., 972 (Mal.)
Manson-Bahr, P., 140 (Jaun.)
——, with Low, 323 (S.S.)
——, with ——, & others, 702 (S.S.)
——, ——, Pratt, J. J., & Gregg, A. L., 705 (Am.)
Manwaring, W. H., Boyd, W. H., & Okami, S., 739 (Chl.)
Maples, E. E., 491 (Lep.)
Maplestone, P. A., 13 (Misc.), 961 (Mal.)
Marais, D. P., 377 (Und.)
Marchelli, M., with Bertarelli, (373) (Pl.)
Marchoux, E., 156, 825 (Lep.), 658 (Misc.), 712 (Am.), 784 (Z.)
Marcialis, G., (308) (Mal.)
Marcucci Delgado, A., 414 (Dys.)
Marie, A., 602 (Misc.)
Marogna, P., 564 (Mal.)
Marque, Raynaud & Sallet, 753 (Misc.)
Marshall, C. H., with Haase & Hall, 279 (Der.)
——, & Vassallo, S. M., 331 (S.S.)
Marshall, D. G., with Gunn, 973 (Mal.)
Martin, E., with Dekester (430) (Misc.)
Martin, H., & Weir, H. H., 1004 (B.R.)
Martindale, W. H., 404, 710 (Am.)
Martinez, E. A., 465 (Z.)
Martini, E., 766 (B.R.), 793 (Z.)
Martone, V., 560 (Mal.)
Marzinowsky, E. I., 18 (Misc.), 135 (R.F.)
Marzinowsky, V., with Jukov & Sutchkova, 961 (Mal.)
Mashimo, S., 370 (Chl.)
Mason, V. R., 670 (Misc.)
Massey, A. Y., 23 *bis* (Misc.)
Matheson, F., 671 (Misc.)
Mathis, C., 362, 742 (Pl.)
Matignon, J. J., 848 (Misc.)
Matsuo, I., & Izawa, T., 119 (Dys.)
da Matta, A., 428 (Misc.), 797, 801 (Z.)
Matta, C., 831 (Lep.)
Matta, B., & Devoto, A., 490 (Lep.)
Matthews, J. C., & Pearson, C. V., 593 (Lab.)
Mattlet, G., 682 (Misc.)
de Mattos, W. B., 983 (Oph.)
Maunsell, E. C. C., 110 (Am.)
Mauritius, 4, 513 (Misc.)
Maxcy, K. F., 963 (Mal.)
——, & Coogle, C. P., 551 (Mal.)
——, & Ziegler, M. V., 963 (Mal.)
Maxwell, J. L., 752 (Misc.)
Maxwell, J. P., 231 (Hel.)
Mayer, M., 215 (Hel.), 325, 702 (S.S.)
Mayer, E., 563 (Mal.)
Maymone, B., (740) (Chl.)
Mazza, A., & Tiscornia, S., 503 (Oph.)
Mazza, S., 786 (Z.)
——, & Merlo, E. N., 732 (Dys.)
Meded.v. d. Burgerlijk. Geneesk. Dienst in Nederl.-Indië, 21, 753 (Misc.)
Medical Journal of Australia, 927 (Misc.)
Medical Journal of S. Africa, 896 (Misc.)
Medical Research Council, 1003 (B.R.)
Medina Jiménez, R., 395 (Bb.)
Megaw, J. W. D., 755 (Misc.), 812 (Bb.)
——, & Banerji, R. N., 814 (Bb.)
Mehta, B. N., 580 (R.F.)
Mei, A., (260) (Hel.)
Meirelles, E., 480 (Lep.)
Meleney, H. E., & Faust, E. C., 623, 942 (Hel.)
de Mello, F., & de Andrade, M., 137 (R.F.)
——, with França, 216 (Hel.)
——, & Guimarais, A., 663 (Misc.)
——, De Sousa, J., & Guimaraes, A., 660 (Misc.)
——, & Suctancar, C., (479) (Z.)
Mello, S., 112 (Am.)
Melnotte, 127 (Dys.)
Mendel, L. B., with Osborne, 78 (Avit.)
Mendelson, R. W., 233 (Hel.), 905, 919 (Misc.)
Mendoza-Guazon, M. P., 623 (Hel.)
Menk, W., 112, 405 (Am.), 324 (S.S.)
Mesnil, F., 129 (R.F.)
Merlo, E. N., with Mazza, 732 (Dys.)
Meyer, J. R., & Pessôa, S. B., 257 (Hel.)
Mhaskar, K. S., 253, 640 *bis* (Hel.)
——, with Caius, 253 *bis* (Hel.)
Michel, P., with Mouriquand, 80 (Avit.), 397 *bis* (Sc.)
——, with ——, & Bertoye, 399, 819 (Sc.)
Migone, L. E., & Osuna, T., 326 (S.S.)
Mihara, Y., with Muto, 224 (Hel.)
Milio, G., 98 (K.A.)
Miller, F. A., 339, 642 (Hel.)
Miller, H. E., with Morrow & Walker, 161 (Lep.)
Mills, C. A., 597 (Lab.)
Mills, E. A., with Sinderson, 941 (Hel.)
Mills, R. G., 800 (Z.)
Miloslavich, E. L., (644) (Hel.)
Milton, F., (260) (Hel.)
Milton, J., 622 (Hel.)
Minagawa, K., 246 *bis* (Hel.)
Minett, E. P., 900 (Misc.)
Ministry of Health, 406 (Dys.)
Mitchell, J. A., 198 (Tb.)
Mitchell, J. M., Asheshov, I. N., & Richardson, G. P. N., 83 (B.R.)
Mixsell, H. R., 967 (Mal.)
Miyagawa, Y., 222 (Hel.)

Miyanaga, I., with Saka, 143 (Jaun.)
Moffat, R. U., 850 (Misc.)
Molinari, G., 617 (Hel.)
Mollow, W., 102 (K.A.)
Molloy, D. M., 339 (Hel.)
Momplé, F. J. R., 513 (Misc.)
Monge, C., 109 (Am.)
Monier-Vinard, with Renault & Gendron, 571 (K.A.)
Monroe, W. M., 460 (Z.), (684) (Misc.)
——, with Connor, 586 (Y.F.), 792 (Z.)
Monserrat, C., & Africa, C., 947 (Hel.)
Montanari, M., 976 (Mal.)
Monteiro, J. L., 853 (Misc.)
Montes, J. E., (395) (Bb.)
Monteverde, J. A., 563 (Mal.)
Montier, F., 400 (Am.)
Montpellier, J., 823 (Lep.)
——, & Lacroix, A., 234, 633 (Hel.)
——, with Raynaud & Lacroix, 282, 285 (Der.)
Moore, J. J., with Hess & Calvin, 81 (Avit.)
Mora, A. D., & others, 741 (Pl.)
Morales Macedo, C., 287 (Der.)
Moreno, R., with Gros, 796 (Z.)
Morin, H., & Sondag, 995 (Tb.)
Morin, H. G. S., 731 (Dys.)
Morin, J., 704 (Am.)
Morin, with Kernéis, 74 (Bl.)
Morrow, H., Walker, E. L., & Miller, H. E., 161 (Lep.)
Morse, S., 597 (Lab.)
Mortiaux, C., with van Nitsen, 722 (Dys.)
Moselli, 877 (R.F.)
Moshkovsky, S., 927 (Misc.)
Moss, E. S., 203 (Hel.)
Moss, W. L., & Bigelow, G. H., 172 (Ys.)
Motais, 501 (Oph.)
Mottram, J. C., with Cramer & Drew, 854 (Misc.)
Mouchet, A., with Delamare, 881 (Fev.)
Mouchet & Guillermin, 581 (R.F.)
Mouchet, R., & van Nitsen, R., 137 (R.F.)
——, ——, & Gérard, P., 667 (Misc.)
——, with Pearson, 526 (B.R.)
Mouriquand, G., 397 (Sc.)
——, & Michel, P., 80 (Avit.), 397 *bis* (Sc.)
——, ——, & Bertoye, P., 399, 819 (Sc.)
Mühlens, P., & Kirschbaum, W., 295 (Mal.)
Muir, E., with Landeman, E., Roy, T. N., & Santra, I., 826 (Lep.)
——, with Napier, 928 (B.R.)
Mukerjee, S. K., 985 (Oph.)
Mukoyama, T., 211 (Hel.)
Müller, A., 842 (Ys.)
Müller, H., (520) *bis*, 923 (Misc.)
Müller, R., 852 (Misc.)
Muniz, J., with da Cunha, 444 (Z.)
Murard, J., with Combier, 707 (Am.)
Murashima, T., 210 (Hel.)
Murphy, S. J., with Hutchison, 48 (Misc.)
Mutermilch, S., 367 (Chl.)
Muto, M., 211, 618 (Hel.)
——, & Mihara, Y., 224 (Hel.)
Muto, S., & Koshiwo, S., 211 (Hel.)

N

Nagayo, M., & Tamiya, 386 (Fev.)
Nainsouta, 1001 (Tb.)
Nakagawa, K., & Suzuki, S., 936 (Hel.)
Nakajo, S., 239 (Hel.)
Napier, L. E., 93, 100, 567, 570, 571, 865 (K.A.), 425 (Misc.)
——, with Chopra, 845 (Misc.)
——, with Knowles & Gupta, 781 (Z.), 866 (K.A.)
——, & Muir, E., 928 (B.R.)
Näslund, C., with Dernby, 412 (Dys.)
Nasso, I., 570 (K.A.)
——, & Mallardi, M., 571 (K.A.)
Natali, A., (430) (Misc.)
Nattan-Larrier, L., 446 (Z.), 631 (Hel.)
Navarro, R., with Gomez & Kapauan, 666 (Misc.)
Navarro-Martin, A., with Fourneau, 329 (S.S.)
——, & Stéfanopoulo, G. J., 328 (S.S.)
Naville, A., with Guyénot & Ponse, 449 (Z.)
Neeb, H. M., 875 (K.A.)
Negroni, P., (365) (Pl.)
Neiva, A., & Pinto, C., 459 *bis*, 474, 793 (Z.)
Nénon, J., & Bonnet, A., 38 (Misc.)
Nettesheim, W., 236 (Hel.)
Neumann, A., 59 (Misc.)
Neumann, P., 966 (Mal.)
Neveu, R., 429 (Misc.)
Neveu-Lemaire, 152 (Lep.), 228 (Hel.) 792, 795 (Z.)
Newham, H. B., 970 (Mal.)
——, with Low, 499 (Oph.)
——, & Robertson, A., 448 (Z.)
Newman, E. A. R., 979 (Oph.)
Nicholson, F. M., 387 (Fev.)
Nicolai, A., & Straub, M., 36 (Misc .)
Nicolas, C., 429 (Misc.)
——, with Gomez & Basa, 157 (Lep.)
Nicolau, S., with Levaditi, 7 *quat.*, 680, 847, 910, 925 *bis* (Misc.)
Nicoll, W., 203, 625, (644) (Hel.)
Nicolle, C., 37 (Misc.), 96 (K.A.), 290 *bis* (Der.)
——, & Anderson, C., 573, 866 (K.A.)

Nicolle C., Burnet, E., & Conseil, E., 804 (Und.)
——, & Conseil, E., 115, (415) (Dys.)
——, ——, & Cuénod, A., 979 (Oph.)
Nicolle, M., & Magrou, J., 166 (B.R.)
Nicholls, L., 162 (Lep.)
——, & Hampton, G. G., 256 (Hel.)
Nigeria, 509 (Misc.)
Nijland, A. H., 736 (Chl.)
Nikanoroff, S., 359 *ter.*, (746) (Pl.)
van Nitsen, R., 672 (Misc.), 842 (Ys.)
——, & Mortiaux, C., 722 (Dys.)
——, with Mouchet, 137 (R.F.)
——, with ——, & Gérard, 667 (Misc.)
——, & Walravens, P., 285 (Der.), 675 (Misc.)
Nixon, J. A., 581 (R.F.)
Noc, F., 19 (Misc.), 419, 446 (Z.), 834 (Lep.), 945 (Hel.)
——, & Giglioli, G. S., 420 (Z.)
——, & Huchard, 186 (Tb.)
——, & Kerneis, 31 (Misc.)
——, & Nogue, 207 (Hel.), 418 *bis* (Z.)
——, with Pons, 475 (Z.)
Noël, P., 824 (Lep.)
Noguchi, H., 146 (Y.F.), 809 (Fev.), 885 (Jaun.)
——, & Pareja, W., 146 (Y.F.)
Nogue, 12, 23, 50, 654 (Misc.), 280, 288 *bis* (Der.), 301 (Mal.), (644) (Hel.) 744 (Pl.)
——, with Heckenroth, 280 (Der.)
——, with Leger, 960 (Mal.), (165) (Lep.)
——, ——, & Hudellet, G., 428 (Misc.)
——, with Noc, 207 (Hel.), 418 *bis* (Z.)
Nöller, 455 (Z.)
Nöller, W., with v. Ostertag & Wolffhügel, 347 (B.R.)
de Nooij, J. A., 245 (Hel.)
Noronha, S., 30 (Misc.)
Norris, W. P., Jacocks, W. P., Winsor, S. A., Gunasekara, S. T., & Keyt, F., 342 (Hel.)
Norwood, B. F., 63 (Misc.)
Noury, O., & Alalou, 738 (Chl.)
——, with Delamare, 42 (Misc.)
Novaro, V., 477 *bis* (Z.)
Nuñez, M. F., 969 (Mal.)

O

Oberlé & Renaud, H. P. J., (430) (Misc.)
O'Brien, A. J. R., with Le Fanu, 580 (R.F.)
O'Brien, H. R., with Beach, 617 (Hel.)
Ocaranza, F., (430) (Misc.)
Ochs, B. F., with Fox, 178 (Ys.)
O'Connor, F. W., 5, 891 (Misc.)
Ogata, N., with Ishiwara, 809 (Fev.)
Ogata, S., 637 (Hel.)
Ogata, T., Kawakita, S., Suzuki, T., Kagoshima, S., & Oka, C., 816 (Bb.)
Ogilvie, W. H., 53 (Misc.)
Ogiwara, H., with Hasimoto, 472 (Z.)
O'Gorman, C. J., 795 (Z.)
Ohba, T., 946 *ter.* (Hel.)
Oho, O., 841 (Ys.)
Ohtsubo, I., 369 (Chl.)
Ohtsuki, M., (365) (Pl.)
Oka, C., with Ogata, Kawakita, Suzuki & Kagoshima, 816 (Bb.)
Okada, S., Sakurai, E., Ibuki, T., & Kabeshima, H., 815 (Bb.)
Okami, S., with Manwaring & Boyd, 739 (Chl.)
Okuda, M., 394 (Bb.)
Okuda, K., with Inada, Ido, Kaneko, Hoki, Ito & Wani, (144) (Jaun.)
——, with Kaneko, (144) (Jaun.)
Olitsky, P. K., with McCartney, 725 (Dys.)
Olitzki, L., 721 (Dys.)
Oliver, T., 475 (Z.)
Olivi, G., 725 (Dys.)
Olivier, P. H., 383 (Fev.)
Ongkiehong, H. F., 124 (Dys.)
Onorato, R., 283, 286, 289 (Der.), 464 (Z.)
Ophthalmological Society of Egypt, 505 (Oph.)
Oppenheimer, E. H., with MacCallum, 847 (Misc.)
Orenstein, A. J., with Pirie, 747 (Ent.)
Orpen, R. W., 688 (S.S.)
Orticoni, A., 293 (Mal.)
——, & Gazzola, M., (415) (Dys.)
Ortiz, P. N., (746) (Pl.)
Osborne, T. B., & Mendel, L. B., 78 (Avit.)
Oshika, H., (430) (Misc.)
v. Ostertag, R., Wolffhügel, K., & Nöller, W., 347 (B.R.)
Osuna, T., with Migone, 326 (S.S.)
Ota, M., 277 (Der.)
Otero, P. M., (746) (Pl.)
Otten, L., 741 (Pl.)
Oudendal, A. J. F., 673, 675 (Misc.)
——, with van Dijke, 288 (Der.)
Ouzilleau, 632 (Hel.), 750 (Misc.)
——, & Lefrou, 691 (S.S.)
——, with Lefrou, 327, 329 (S.S.)
Ovazza, V. E., 976 (Mal.)
Oyama, R., & Yanagisawa, S., 372 (Chl.)

P

Pacalin, M. G., 980 (Oph.)
di Pace, I., 295, 560 (Mal.)
Pacella, G., (430) (Misc.), 476 (Z.)

Pacheco, G., with de Faria, 719 *bis* (Dys.)
Pacheco-Luna, R., 501 (Oph.)
Padua, R. G., 488 (Lep.), 553 (Mal.)
Paez, F. R., (520) (Misc.)
Pagniez, P., & Ravina, A., 580 (R.F.)
Pais, A., 972 (Mal.)
Palazzo, R., with Grapiolo & Fossati, 584 (Jaun.)
Palestine, 960 (Mal.)
Palmer, L. S., & Hoffman, C. T., 393 (Bb.)
Pam, M. M., 13 (Misc.)
Panayotatou, A. G., 195 (Tb.), 568 (K.A.), 711 (Am.)
Papacostas, G., with Gaté, 99 (K.A.)
Pareja, W., with Noguchi, 146 (Y.F.)
Parham, J. C., 179 (Ys.)
Park, G. W., (479) (Z.)
Parker, R. R., 808 (Fev.)
——, with Spencer, 808 (Fev.)
Parkinson, W. R., 675 (Misc.)
Parmanand, M. J., 656 (Misc.), 881 (Fev.)
Parodi, S. E., & Bonavia, L. L., 500 (Oph.)
Parra, R. F., (165) (Lep.)
Parreiras, D., 64 (Misc.)
Parrish, C. C., 78 (Pel.)
Parrot, L., 461 (Z.), 981 (Oph.)
——, & Donatien, A., 105 (K.A.)
——, & Foley, H., 189 *bis* (Tb.)
——, with Sergent, Edm., Béguet, Lemaire & Vérité, 667 (Misc.)
Paskind, H. A., 55 (Misc.)
Passey, R. D., & Ryle, J. A., 886 (Jaun.)
Patané, C. G., with Fusco, 365, 745 (Pl.)
Paterson, G. W., 843 (Ys.)
Patni, H. C., with Mackie, 871 (K.A.)
Patrick, A., 355 (Bl.), 902 (Misc.)
Patterson, H. A., (261) (Hel.)
Patterson, S. W., 714 (Am.)
——, & Williams, F. E., 409 (Dys.)
Pawlowsky, E., 456 (Z.)
——, & Stein, A. R., 290 (Der.), 467, 474 (Z.)
Payenneville, J., with Dévé, 227 (Hel.)
Payne, F. K., with Ackert, Stoll & Augustine, 949 (Hel.)
——, with Cort, Ackert, Augustine & Payne, G. C., 240 (Hel.)
Payne, G. C., 341 (Hel.)
——, with Cort, Ackert, Augustine & Payne, F. K., 240 (Hel.)
Peacock, W. L., & Duke, H. L., 42 (Misc.)
Pearce, L., (702) (S.S.)
Pearson, A., & Mouchet, R., 526 (B.R.)
Pearson, C. V., with Matthews, 593 (Lab.)
Pedro, A., 796 (Z.), 805 (Fev.)
Pedroso, A. M., 573 (K.A.)
Peking Union Med. Coll., 168, 524 (B.R.)
Pellé, (644) (Hel.)
Pellegrini, A., 880 (Fev.)
Peltier, 45 (Misc.)
Pena Chabarria, A., 674 (Misc.)
Pentimalli, F., 784 (Z.)
Peralta, D., M'Acormick, D. D., Carvajal, M., Pradilla Gonzalez, F., Gomez, A., Valdivieso, J., Serpa, R., & Ardila Gomez, L., 911 (Misc.)
Pereira Lage, F., 852 (Misc.)
Pérez Carreno, L., (430) (Misc.)
Pergola, M., 363 (Pl.)
Perkins, G. A., 160 (Lep.)
Perrin, T. G., 586 (Y.F.)
Perry, H. M. J., 911 (Misc.)
Perry, H. M., 95 (K.A.)
Peryassu, A., 796 (Z.)
Pessôa, S. B., 953 (Hel.)
——, with de Almeida, Junior, 250 (Hel.)
——, with Meyer, 257 (Hel.)
——, with Smillie, 641 (Hel.)
Peterson, E., 144 (Y.F.)
Petit, A., 926 (Misc.)
Petit, P. J., 980 (Oph.)
Pétrault, T., (684) (Misc.)
Peutz, J. L. A., 335 (S.S.)
Peyre, E. L., 640 (Hel.)
——, with Labernadie, 909 (Misc.)
Pezer, O., with Leger, 188 (Tb.)
Phippen, H. G., 642 (Hel.)
Phisalix, M., 525 (B.R.), 604 (Misc.)
Phylactos, A., 432 (B.R.)
Pico, C. E., with Ariazzi, 159 (Lep.)
Pieter, H., 174 (Ys.), 585 (Y.F.)
Pillay, A. P., (520) (Misc.)
Pinaud, J., with Leger & Bédier, 555 (Mal.)
Pinkerton, H., with Wolbach & Schlesinger, 808 (Fev.)
Pinnock, D. D., 846 (Misc.)
Pinto, C., 699 (S.S.)
——, with Godoy, 474 (Z.), 557 (Mal.)
——, with Neiva, 459 *bis*, 474, 793 (Z.)
Piquemal, M., 876 (K.A.)
Pirie, J. H. H., 213 (Hel.)
——, & Orenstein, A. J., 747 (Ent.)
——, with Porter, 210 (Hel.)
Pirot, R., with Sigalas, 143 (Jaun.)
Playfair, K., 233 (Hel.)
Plazy, with Dargein, 379 (Und.), 879 (R.F.)
Plessier, 577 (K.A.)
Pletnew, D. D., 564 (Mal.), 879 (R.F.)
Podiapolsky, P., 136 (R.F.)
Polidori, V., (66), 426, 761 (Misc.)
Pollitzer, R., with Wu Lien Teh & Chun, 365, (746) (Pl.)
Pomaret, M., with Sézary, 578 (R.F.)

Pommé & Sabagh, A.-K., 213 (Hel.)
Pondman, A., 736 (Chl.)
Pons, R., & Noc, F., 475 (Z.)
Ponse, K., with Guyénot & Naville, 449 (Z.)
Porter, A., & Pirie, J. H. H., 210 (Hel.)
Porto Rico Agricultural Experiment Station, 461 (Z.)
Pospelow, W. A., 105 (K.A.)
Poujol, G., 599 (Lab.)
Powell, A., 184 (Tb.), 416 (Sp.), 835 (Ys.)
——, & Bana, F. D., 881 (Fev.)
Pradilla Gonzalez, F., with Peralta, M'Acormick, Carvajal, Gomez, Valdivieso, Serpa & Ardila Gomez, 911 (Misc.)
Prall, S. R., 671 (Misc.)
Prat, S., (308) (Mal.), (430) (Misc.)
Prates, M. M., 502 (Oph.)
Pratt, J. J., with Manson-Bahr, Low & Gregg, 705 (Am.)
Price, J. D., 865 (K.A.)
Pringault, E., 461 (Z.)
de Probizer, G., 76 (Pel.)
Proceedings Transvaal Mine Med. Officers' Assoc., 195 *bis*, 990, 991 (Tb.)
Public Health Reports, 150, 484 (Lep.), 801 (Z.)
Puntoni, V., 740 (Chl.)
Purdy, J. S., 199 (Tb.), 429 (Misc.)

Q

de Quervain, F., 288 (Der.)
Quintini, J., (430) (Misc.)
Quiroga, R., 662 (Misc.)

R

Radosavljevíc, A., 303 (Mal.)
Ramoino, P., 76 (Pel.)
Ramond, L., Denoyelle & Lautman, 708 (Am.)
Ramos, O., 903 (Misc.)
Ramsay, G. C., 238 (Hel.)
Randoin, with Lopez-Lomba, J., 818 *bis* (Sc.)
Ransom, B. H., 235 (Hel.)
Rashina, M., 961 (Mal.)
Ravaut, P., 404 (Am.), 560 (Mal.)
Ravina, A., with Pagniez, 580 (R.F.)
Raybaud, J., with d'Astros & Giraud, 875 (K.A.)
Raynaud, with Marque & Sallet, 753 (Misc.)
——, Montpellier, J., & Lacroix, A., 282, 285 (Der.)
Read, B. E., 763 (Misc.)
Rebagliati, R., 380 (Und.)
Reed, A. C., 107 (Am.)
Reed, J. G., 936 (Hel.)
Regnault, F., (338) (S.S.), (978) (Mal.)
Reich, W. W., & Beckwith, T. D., 335 (S.S.)
Reid, C. B. B., 842 (Ys.)
Reilly, J., with Teissier & Gastinel, 745 *bis* (Pl.)
Reinhold, C. H., 110 (Am.)
Reitani, U., 976 (Mal.)
Renaud, H. P. J., with Oberlé, (430) (Misc.)
Renault, J., Monier-Vinard & Gendron, G., 571 (K.A.)
Rennie, P. M., 404 (Am.)
Reynaud, G., (430), 763 (Misc.)
——, & Leger, M., 619 (Hel.)
Reynès, 848 (Misc.)
Rezende, M., 616 (Hel.)
Ribadeau-Dumas, L., 927 (Misc.)
Ricci, O., 564 (Mal.)
Rice, D. A., & Williams, H. O., with Sladden, (261) (Hel.)
Rice, L., 804 (Fev.)
——, with Chandler, 804 (Fev.)
Richards, D. C., 641 (Hel.)
Richards, W. G., 946 (Hel.)
Richardson, C. H., & E. H., 464 (Z.)
Richardson, G. P. N., with Mitchell & Asheshov, 83 (B.R.)
Richet fils, C., 67 *ter.* (H.S.)
Ridley, H. N., 283 (Der.)
Rieux, 294 *bis*, 564 (Mal.)
Rigollet, 474 (Z.)
Riley, W. A., & Shannon, W. R., 224 (Hel.)
Risquez, F. A., 16 (Misc.)
Rivers, W. H. R., 83 (B.R.)
Rivet, L., 967 (Mal.)
Rizal, L. L., with del Rosario, 390 (Bb.), 736 (Chl.)
Robert, L., 629 (Hel.), 669 (Misc.)
Roberti, J., with Bergé, Bénard & Guttmann, 227 (Hel.)
Roberts, S. R., (308) (Mal.)
Robertson, A., with Newham, 448 (Z.)
——, with Thomson, 448 (Z.) (732) (Dys.)
Robertson, R. C., 120 (Dys.)
Robertson, W., 851 (Misc.)
Robineau, 163, 822 *ter.* (Lep.), 922 (Misc.)
Rochaix, A., with Courmont, 724 *bis* (Dys.)
Rockefeller Foundation, 643 (Hel.), 856 (B.R.)
Rodenwaldt, E., 915 *bis*, 917 (Misc.)
Rodhain, J., 425, 682 (Misc.), 471 (Z.)
Rodrigues, S. L., 440 (Z.)
Rodriguez Arjona, V., 577 (K.A.)
von Roemer, L. S. A. M., 683 (Misc.)

Roger, G. H., 166 (B.R.)
Rogers, J. M., 416 (Sp.)
Rogers, L., 148, (165), 821, 828 (Lep.), (1002) (Tb.)
Rolland, O., & Jouve, A., 79 (Avit.)
Rollet & Bussy, 987 (Oph.)
Romby, P., 294 (Mal.), 589 (Lab.)
Root, F. M., 458, 789 (Z.)
Rosal, I., 554 (Mal.)
Rosamond, E., 554 (Mal.)
Rosenberger, F., 300 (Mal.)
Rosenberger, G., 423 (Misc.)
Rosenburg, A., 966 (Mal.)
Rosenthal, F., & Freund, R., 337, 700 (S.S.)
Ross, R., 611 (B.R.)
Roth, D. A., 258 (Hel.)
Roubaud, E., 464, 467, 468 (Z.)
——, & Franchini, G., (421) (Z.)
——, & Veillon, R., 463 (Z.)
Rousseau, L., 229, 255 (Hel.)
Routh, L. M., 429 (Misc.)
Rouzaud, Biscons & de Fossey, M., 848 (Misc.)
Row, R., 103 (K.A.), 581 (R.F.), 1000 (Tb.)
Roy, A., 920 (Misc.)
Roy, D. N., 577 (K.A.)
Roy, J. N. with Durante, 34 (Misc.)
Roy, S. C., (74) (Bl.)
Roy, S. K., 629, 630 (Hel.)
——, & Bose, S. C., 230 (Hel.)
Roy, T. N., with Muir, Landeman & Santra, 826 (Lep.)
Rozies, H., 381 (Ud.)
Rucker, W. C., (430) (Misc.)
Rumjanzew, W., with Ioff, 559 (Mal.)
de Ruyter, 499 (Oph.)
Ryle, J. A., 714 (Am.)
——, with Passey, 886 (Jaun.)

S

Sabagh, A.-K., with Pommé, 213 (Hel.)
Sabrié, R., 193 (Tb.)
Saeki, Y., 225 (Hel.)
Saha, J. C., with Banerjee, 573, 869 (K.A.)
Saka, M. & Miyanaga, I., 143 (Jaun.)
Saka, S., 143 (Jaun.)
Sakai, M., 816 (Bb.)
Sakamoto, T., with Tsurumi, Hara, Imai & Aoki, 743 (Pl.)
Sakurai, E., with Okada, Ibuki & Kabeshima, 815 (Bb.)
Salisbury, E. I., (430) (Misc.)
Salles, with Ardin-Delteil & Azoulay, 669 (Misc.)
Sallet, with Marque & Raynaud, 753 (Misc.)
Salm, A. J., 663 (Misc.), 741 (Pl.)
Salvador, W., 429 (Misc.)
Salvat, P., & Fontoynont, M., 278 (Der.)
——, with Fontoynont, 658 (Misc.)
Salvioli, G., 73 (Bl.), 975 (Mal.)
Sambon, L. W., 17 (Misc.), (421), 475 (Z.), (684) (Misc.)
Sanarelli, G., 737 (Chl.)
Sands, J. E., 975 (Mal.)
Sangiorgi, G., 140 (R.F.), 765 (B.R.)
Sanjiva Rao, B., 577 (K.A.)
van Sant, H.M., with Young, 572 (K.A.)
Santos, G., 580 (R.F.)
Santra, I., with Muir, Landeman & Roy, 826 (Lep.)
Saski, S., (373) (Chl.)
Savini, E., 701 (S.S.)
Sawyer, W. A., 345 (Hel.)
Scalas, L., 114 (Am.)
Schaefer, H., 735 (Sp.)
Schalk, H., 302 (Mal.)
Scheunert, A., & Schieblich, M., 80 (Avit.)
Schieblich, M., with Scheunert, 80 (Avit.)
Schiff, F., 564 (Mal.)
Schilling, V., 926 (Misc.)
Schirwind, S., with Yakimoff & Joukowsky (431), 927 (Misc.)
Schlesinger, M. J., with Wolbach & Pinkerton, 808 (Fev.)
Schloessmann, 238 (Hel.)
Schmidt, H., 61 (Misc.)
Schmidt, W. T., 239, 637 (Hel.)
Schmitt, G. P., with Cornwall, 597 (Lab.)
Schneider, O., 390 (Bb.)
Schotte, (684) (Misc.)
Schrieke, B., 683 (Misc.)
von Schroetter, H., 876 (K.A.)
Schüffner, 459 (Z.)
Schuerer, Christophers & de Jonge, 551 (Mal.)
Schueffner, W., 388 (Fev.), 459 (Z.)
——, & Snijders, E. P., 883 (Jaun.)
——, & Vervoort, H., 258 (Hel.)
Schuhalter, W., with Bjekoloff, 135 (R.F.)
Schussler, Jr., H., with Faber, 577 (K.A.)
Schwartz, B., & Tubangui, M. A., 203, 639 (Hel.)
Schwetz, J., 470 *bis* (Z.)
Scialom, D., (430) (Misc.)
Scott, H. H., 733 (Sp.)
Scott, L. C., 383 (Fev.)
de Seabra, A., with Bettencourt & Borges, 217 (Hel.)
Segal, M., 661 (Misc.)
Sei, S., 697 (S.S.), 902 (Misc.)
Seidelin, H., 306, 553 (Mal.)
Seidell, A., 79 *bis* (Avit.)
Seki-Enseli, 956 (Hel.)

Sellards, A. W., 836 (Ys.)
——, & Goodpasture, E. W., 836 (Ys.)
——, —— & de Leon, W., 836 *bis* (Ys.)
——, & Leiva, L., 400, 402 (Am.)
Selmon, A. C., 368 (Chl.)
Semon, H. C., & Christopherson, J. B., 104 (K.A.)
Sen, K. C., 284 (Der.)
Sen, P. B., with Brahmachari, 872 (K.A.)
Sen, R. T., with Shortt, 869 (K.A.)
Sen, S. C., 905 (Misc.)
Senevet, G., 38 (Misc.), (479) (Z.)
——, & Witas, P., 445 (Z.)
Senior-White, R., 461 (Z.)
Sergent, Edm., 21 (Misc.)
——, Béguet, M., Parrot, L., Lemaire, G., & Vérité, H., 667 (Misc.)
——, & Foley, H., 133 (R.F.)
——, ——, & Vialatte, C., 37 *bis* (Misc.)
Sergent, Et., 876 (K.A.)
Sergent, Et. & Edm., 303, 307 (Mal.)
Sergent, Et., & Catanei, A., 976 (Mal.)
——, Foley, H., & Catanel, A., 560 (Mal.)
Serpa, R., with Peralta, M'Acormick, Carvajal, Pradilla Gonzalez, Gomez, Valdivieso, & Ardila Gomez, 911 (Misc.)
Serra, A., 483, 493 (Lep.)
Sewell, R. B. S., with Annandale, 207 (Hel.)
Seyfarth, 570 *bis* (K.A.)
Sézary, A., & Alibert, J., 30 (Misc.)
——, & Pomaret, M., 578 (R.F.)
Shand, J., 666 (Misc.)
Shanker, H., 987 (Oph.)
Shannon, R. C., 457 (Z.)
Shannon, W. R., with Riley, 224 (Hel.)
Sharp, N. A. D., (702) (S.S.)
Sharpe, F. R., & Lotka, A. J., 298 (Mal.)
Sharpe, W. S., 424, 763 (Misc.)
Shattuck, G. C., 38, 751 (Misc.)
Shaw, B. H., 720 (Dys.)
Shearman, C. H., 728 (Dys.)
Shera, A. G., 375 (Ent.)
Shiiba, Y., & Ushijima, T., 739 (Chl.)
Shillinger, J. E., with Hall, 628 (Hel.)
Shimojo, K., 122 (Dys.)
Shipley, P. G., McCollum, E. V., & Simmonds, N., 394 (Bb.)
Shircore, J. O., 483 (Lep.), 842 (Ys.)
Shortt, H. E., 440, 784 (Z.), 566, 868, 872 (K.A.), 592 (Lab.)
——, & Sen, R. T., 869 (K.A.)
Shorten, J. A., 81 (Avit.)
Shunji, M., 370 (Chl.)
Sicé, 315 (S.S.)
——, & Daude, (430) (Misc.)
Sigalas, R., & Pirot, R., 143 (Jaun.)
Sikora, H., 562 (Misc.)
da Silva, E. P., with Bettencourt, 218 (Hel.)
——, & Figueira, L., 603 (Misc.)
Silva with da Costa, 113 (Am.)
Simon, C. E., 442 (Z.)
Simmonds, N., with McCollum, 81 (Avit.)
——, with Shipley & McCollum, 394 (Bb.)
Simonin, P., 204 (Hel.)
Simonsen, J. L., with Howard & Anderson, 904 (Misc.)
Sinderson, H. C., 655 (Misc.)
——, & Mills, E. A., 941 (Hel.)
Sinton, J. A., 300, 302, 971 (Mal.), 588 (Lab.)
Sirotinin, N., 370 (Chl.)
Sisco, D. L., 640 (Hel.)
Sitsen, A. E., 22 (Misc.)
Sladden, A. F., with Rice & Williams, (261) (Hel.)
Slavoaca, T., 701 *bis* (S.S.)
Smillie, W. G., 249, 259, 951 (Hel.)
——, & Pessôa, S. B., 641 (Hel.)
Smith, H., 764 (Misc.)
Smith, M. I., with Voegtlin, Dyer & Thompson, 695 (S.S.)
Smith, R. O. A., with Dawson, 516 (Misc.)
Smits, J. C. J. C., 106 (Am.)
Snijders, E. P., 712 (Am.), 736 (Chl.), 748 *bis* (Ent.)
——, with Schueffner, 883 (Jaun.)
——, & Stoll, A., 683 (Misc.)
——, & Stoll, A., 683 (Misc.)
——, & Straub, M., 24, 25 (Misc.)
Soares, J., 645 (Misc.)
Soca, F., 62 (Misc.)
Sokoloff, B., 439 (Z.)
Solano Ramos, F., (417) (Sp.)
Solovief, P., with Cuénod, 290 (Der.)
Solowzoff, A. S., with Yakimoff, 878 (R.F.)
Sondag, with Morin, 995 (Tb.)
Soromenho, L., 958 (Mal.)
de Sousa, J., 663 (Misc.)
——, with De Mello & Guimaraes, 660 (Misc.)
South African Institute for Medical Research, 511, 894 (Misc.)
Souvoroff, S., (746) (Pl.)
de Souza, R., 556 (Mal.)
Spaar, E. C., 881 (Fev.)
Spencer, H. A., 291 *bis*, 564, 958, 976 (Mal.)
Spencer, R. R., & Parker, R. R., 808 (Fev.)
Spezzafumo, U., 96 (K.A.)
Spire, 150 (Lep.)
Spittel, R. L., 169 (Ys.), 263 (B.R.)
Stammers, G. E. F., with Brown, 455 (Z.)

Stancanelli, P., 465 (Z.), 874 (K.A.)
Stannus, H. S., 167 (B.R.)
Starobynsky, A., 134 (R.F.)
Starry, A. C., with Warthin, 591 (Lab.)
Steenbock, H., with Hart & Lepkovsky, 398 (Sc.)
van Steenis, P. B., 741 *bis* (Pl.)
Stéfanopoulo, G. J., with Navarro-Martin, 328 (S.S.)
Steffan, 471 (Z.)
Steffan, P., 697 (S.S.)
Stein, A. R., with Pawlowsky, 290 (Der.), 467, 474 (Z.)
Steiner, L., 497 (Oph.)
Stekhoven, Jr., J. H. S., 955 (Hel.)
Stekhoven, S., & Stekhoven-Meyer, S. A. W., 638 (Hel.)
Stekhoven-Meyer, S. A. W., with Stekhoven, 638 (Hel.)
Stephens, E. A., 806 (Fev.)
Stephens, H. E. R., 665 (Misc.)
Stephens, J. W. W., 230 (Hel.), 296, 968 (Mal.), 854 (Misc.)
——, & Yorke, W., 324 (S.S.)
Stévenel, 882 (Y.F.)
Stewart, D. H., 421 (Z.)
Stillmunkés, A., with Bardier, 477 (Z.)
Stitt, E. R., 685 (B.R.)
St. John, J. H., with Bates, 132 (R.F.)
——, & Bates, L. B., 131 (R.F.)
Stocker, C. J., 806 (Fev.)
Stoll, A., with Snijders, 683 (Misc.)
Stoll, N. R., with Ackert, Payne & Augustine, 949 (Hel.)
Stones, R. Y., 632 (Hel.)
Strakosch, W., 564 (Mal.)
Straub, M., with Nicolai, 36 (Misc.)
——, with Snijders, 24, 25 (Misc.)
Sträussler, E., & Koskinas, G., 977 (Mal.)
Strickland, C., 292 (Mal.)
Strong, R. A., 77 (Pel.)
Strong, R. P., (430) (Misc.)
Stutzer, M. J., 409 (Dys.)
Stutzer, M. I., 372 (Chl.)
Suctancar, C., with de Mello, (479) (Z.)
Suemori, 503 (Oph.)
Suganuma, S., 233 (Hel.)
Suldey, E. W., 389 (Bb.)
Sumner, F. W., 667 (Misc.)
Sundstroem, E. S., 759 (Misc.)
Surbek, K., 561 (Mal.)
Sutchkova, O., with Jukov & Marzinowsky, 961 (Mal.)
Suyemori, S., 209, 221 (Hel.)
Suzuki, S., 618, 936 (Hel.)
——, with Nakagawa, 936 (Hel.)
Suzuki, T., with Ogata, Kawakita, Kagoshima & Oka, 816 (Bb.)
Swaminath, C. S., with Cragg, 789 (Z.)
Swanbeck, C. E., 597 (Lab.)
Swarup, A., 676 (Misc.)
Sweet, W. C., 954 (Hel.)
Swellengrebel, N. H., 360 (Pl.), 459 (Z.)
Swezy, O., 787 (Z.)
——, with Kofoid, 713 (Am.)
——, with ——, & Boyers, 713 (Am.)
——, with ——, & Kornhauser, 592 (Lab.)
Swynnerton, C. F. M., 311 (S.S.), 469 (Z.)
Symons, T. H., 101 (K.A.)
Szereszewshi, L., with Szymanowski, 120 (Dys.)
Szymanowski, Z., & Szereszewski, L., 120 (Dys.)

T

Tainan Mission Hospital, 752 (Misc.)
Takagi, S., with Tochihara, 636 (Hel.)
Takeda, H., with Kodama, 372 (Chl.)
Talbot, 507, 979, 980 (Oph.)
Taliaferro, W. H., 788 (Z.)
——, & Becker, E. R., (479) (Z.)
Talwik, S., 149 (Lep.)
Tamiya, S., 834 (Lep.)
——, with Nagayo, 386 (Fev.)
Tanabe H., 208 *bis* (Hel.)
Tanaka, A., 725 (Dys.)
Tanaka, T., 415 (Dys.)
Tanganyika Territory, 483 (Lep.)
Tanon, L., 438 (Z.)
——, & Cambessédès, 743 (Pl.)
——, with Bordas & Dubief, 361 (Pl.)
Tarassévitch, L., 557 (Mal.)
Tate, G., 65 (Misc.)
Taylor, F. E., with Castellani, 424, 920 (Misc.)
Taylor, J. A., 909 (Misc.)
Taylor, M. R., 475 (Z.)
Tebbutt, A. H., & McConnel, S. V., (431) (Misc.)
Teissier, P., Gastinel, P., & Reilly, J., 745 *bis* (Pl.)
Tejera, E., 575 (K.A.)
Teppaz, L., 187 (Tb.)
Terra, F., Torres, M., da Fonseca, O., & Arêa Leão, A. E., 278 (Der.)
Terrien, E., with Bizard, 569 (K.A.)
Thavara, M. C., 903 (Misc.)
Theunissen, W. F., 601 (Misc.)
van Thiel, P. H., (260) (Hel.)
Thiroux, A., 651 (Misc.)
Thomas, W. S., 437 (Z.)
Thompson, J. W., with Voegtlin, Smith & Dyer, 695 (S.S.)
Thompson, L., 597 (Lab.)
Thomson, J. G., & Robertson, A., 448 (Z.), (732) (Dys.)
Thomson, J. W., 650 (Misc.)

Thomson, T., with Castellani & Douglas, 657 *bis* (Misc.)
Thoulon, (365) (Pl.)
Ticho, A., 502 (Oph.), 795 (Z.)
Tidy, H. L., 735 (Sp.)
Tiscornia, S., with Mazza, 503 (Oph.)
Tissot, with Gastou, 576 (K.A.)
Titowa, N. A., with Kulescha, 578 (R.F.)
Tochihara, I., & Takagi, S., 636 (Hel.)
Toide, G., 212 (Hel.)
Tomb, J. W., 736 (Chl.), 944 (Hel.)
Torii, K., & Watanabe, H., 229 (Hel.)
Torregrosa, A., 646 (Misc.)
Torres, M., with Terra, da Fonseca & Arêa Leão, 278 (Der.)
Tournier, 34 (Misc.)
——, with Lachaume, 228 (Hel.)
Tournier, E., 180 *bis* (Ys.), (261), 635 (Hel.)
Toyama, C., 395 (Bb.)
Toyoda, T., with Tsurumi, 368 (Chl.)
Trabaud, with Lasnet, (1002) (Tb.)
Trager, V. B., with Lyon, 597 (Lab.)
Transactions of the 4th Congress of the Far Eastern Association of Tropical Medicine, 551 (Mal.)
Transvaal, Proceedings Mine Med. Officers' Assoc., 195 *bis*, 990, 991 (Tb.)
Traub, E. F., with Goodman, 842 (Ys.)
Treutlein, A., 302 (Mal.)
Tricoire, R., 908 (Misc.)
Trolli, 624 (Hel.), 673 (Misc.)
Tsurumi, M., & Toyoda, T., 368 (Chl.)
Tsurumi, S., Hara, C., Sakamoto, T., Imai, M., & Aoki, T., 743 (Pl.)
Tsykalas, 215 (Hel.)
Tubangui, M. A., with Schwartz, 203, 639 (Hel.)
Tucker, J. P., with Kofoid, 248 (Hel.)
Tuffier, T., 15 *bis* (Misc.)
Turner, C., (644) (Hel.)
Tyau, E. S., (260) (Hel.)

U

Ubago, M., (431) (Misc.)
Uchida, M., (496) (Lep.)
Uchimura, R., 626 (Hel.)
Uganda Protectorate, 691 (S.S.)
Ugi, S., 942 (Hel.)
Uhlenhuth, P., & Zuelzer, M., 582 (Jaun.)
Ukil, A., 292 (Mal.)
Unna, P. G., 487 (Lep.)
Usami, K., & Kamada, R., 205, 237 (Hel.)
Ushijima, T., with Shiba, 739 (Chl.)

V

Vaccárezza, R. F., with Destefano, 525 (B.R.)
Vadala, A. J., with Cooper, 642 (Hel.)
Vaglio, R., 96 (K.A.)
Valcke, G., 690 (S.S.)
Valdivieso, J., with Peralta, M'Acormick, Carvajal, Pradilla Gonzalez, Gomez, Serpa, & Ardila Gomez, 911 (Misc.)
Valenzuela, A. J., 639 (Hel.), 850 (Misc.)
Vallarino, J. J., (431) (Misc.)
Vallet, E. M., 14 (Misc.)
Valois, G., & Lemoine, P., 987 (Oph.)
Valverde, B., 482, 485, 491, 823 (Lep.)
van de Velde, E., 583, 884 (Jaun.)
van den Branden, 182 (Ys.)
——, & van Hoof, 43, 45 (Misc.), 177 (Ys.), 329, 698, 702 (S.S.), 934 (Hel.), 959 (Mal.)
van den Hoven van Genderen, A. J., 603 (Misc.)
van der Hoek-van Eelders, H. G. C., 807 (Fev.)
van der Walle, 393 (Bb.), 765 (B.R.)
van der Zijl, A., 653 (Misc.)
Vanni, V., 141, 884 (Jaun.)
Vanzetti, F., 732 (Dys.)
Varadarajan, P. S., with Cunningham, 865 *bis*, 872, (K.A.)
de Vasconcellos, A., with Cerquiera, 575 (K.A.)
Vassallo, S. M., 357 (Pl.)
——, with Marshall, 331 (S.S.)
Veillon, R., with Roubaud, 463 (Z.)
Veit, R., (261) (Hel.)
Veldee, M. V., 966 (Mal.)
Velho, A., 559 (Mal.)
Velho, L. B. de A., 316 (S.S.)
Vérité, H., with Sergent, Edm., Béguet, Parrot & Lemaire 667 (Misc.)
Vernet, I., 480, 482 (Lep.)
Verrotti, G., 105 (K.A.)
Versari, A., 491 (Lep.)
Vervoort, H., 583 (Jaun.), 849 (Misc.)
——, with Schüffner, 258 (Hel.)
Verwey, A., 984 (Oph.)
Vialatte, C., 296 (Mal.)
——, with Sergent, Edm., & Foley, 37 *bis* (Misc.)
Vieira, B., 145 (Y.F.)
Vieira, J. P. B., 289 (Der.)
Vignes, H., 307 (Mal.)
Villain, G., 96 (K.A.)
Villard, H., 467 (Z.)
Villela, E., with Chagas, 335 (S.S.)
Vincent, G. E., 856 (B.R.)
Vincent, H., 381 (Und.)
Visuvalingham, S. A., with Fletcher, 970 (Mal.)

Viswalingam, A., 182 (Ys.)
Vitrex Glass, 499 (Oph.)
Voegtlin, C., Smith, M. I., Dyer, H., & Thompson, J. W., 695 (S.S.)
de Vogel, W. T., (431) (Misc.)
Vomela, S., 883 *bis* (Y.F.)

W

Wachowiak, M., with Fleisher, 921 (Misc.)
Wade, H. W., (520) (Misc.)
——, with Cabrera, 427 (Misc.)
Wade, T. W., 406 (Dys.)
Wagner-Jauregg, 973 (Mal.)
Walch, E., 258 (Hel.), 473, 800 (Z.), 880 (Fev.)
Walker, E. L., 154 (Lep.)
——, with Morrow & Miller, 161 (Lep.)
Walker, E. M., 467 (Z.)
Walker, F. D., 420 (Z.)
Walker, P. H., 851 (Misc.)
Wallace, A., 154 (Lep.)
Wallace, M. E., (261) (Hel.)
Walravens, P., 39 *bis* (Misc.), 959 (Mal.)
——, with van Nitsen, 285 (Der.), 675 (Misc.)
Wani, H., with Inada, Ido, Kaneko, Hoki, Ito & Okuda, (144) (Jaun.)
——, with ——, ——, Hoki & Ito, (144) (Jaun.)
Warasi, W., 371 (Chl.)
Warthin, A. S., & Starry, A. C., 591 (Lab.)
Wassilewsky, W. J., with Yakimoff, (431) (Misc.)
Watanabe, H., with Torii, 229 (Hel.)
Watanabe, K., 229 (Hel.)
Watanabe, T., (732) (Dys.)
Watkins-Pitchford, W., 511, 894 (Misc.) 625 (Hel.)
Watson, G. A., 728 (Dys.)
Watson, M., 458 (Z.)
Watson-Williams, P., 764 (Misc.)
Watts, R. C., 934 (Hel.)
Webb, W. L., 515 (Misc.)
Weber, H. H., 974 (Mal.)
Weill, E., Arloing, F., & Dufourt, A., 80 (Avit.)
Weir, H. H., with Martin, 1004 (B.R.)
Wellcome Bureau of Scientific Research 84 (B.R.)
Wells, A. H., Agcaoili, F., & Feliciano, R. T., 429 (Misc.)
Welsh, R. H., (431) (Misc.)
Wenyon, C. M., 353 (Bl.), 437, 527 785, 855 (Z.), 976 (Mal.)
von Werdt, F., 721 (Dys.)
Wesener, 299 (Mal.)
Wheeler, G. A., 75 (Pel.)
——, & Goldberger, J., 77 (Pel.)
Whelply, Jr., F. R., 260 (Hel.)
Whitehead, W. T., 660 (Misc.)
Whitmore, E. R., 302 (Mal.)
Whittingham, H. E., 385 (Fev.), 414, 731, (732) (Dys.)
Wibaux, with Cavaillon, 406 (Dys.)
Wickersheimer, E., 745 (Pl.)
Widal, F., Abrami, P., & Joltrain, E., (520) (Misc.)
Widowitz, P., 723 (Dys.)
Wieberdink, T., 199 (Tb.)
Wiggins, C. A., 72 (Bl.)
Wijdooghe, J., (431) (Misc.)
Wilkinson, E., 146 (Y.F.)
Williams, E. G., (308) (Mal.)
Williams, F. E., with Patterson, 409 (Dys.)
Williams, H. O., with Rice & Sladden, (261) (Hel.)
Williamson, G. A., 622 (Hel.)
Willmore, J. G., 708 (Am.)
Wilson, C. E., 792 (Z.)
Wilson, H. F., 215 (Hel.)
Wilson, R. M., 827 (Lep.)
von Wilucki, 307 (Mal.)
van Winkle, C., with Hogue, 784 (Z.)
Winsor, S. A., with Norris, Jacocks, Gunasekara & Keyt, 342 (Hel.)
von Winterfeld, (644) (Hel.)
Witas, P., with Senevet, 445 (Z.)
Woensdregt, M., & van Dam, C., 965 (Mal.)
Wolbach, S. B., Pinkerton, H., & Schlesinger, M. J., 808 (Fev.)
Wolffhügel, K., with v. Ostertag & Nöller, 347 (B.R.)
Wollman, E., 463 (Z.)
Wood, E. J., 55 (Misc.)
Woodcock, H. M., 676, 677 (Misc.)
Wrenshall, R., with Dean, 160 (Lep.)
Wright, C., 676 (Misc.)
Wright, R. E., 498, 984 *bis* (Oph.), 796 (Z.)
Wu Lien Teh, 54, 82 (Misc.), (B.R.)
——, Chun, J. W. H., & Pollitzer, R., 365, (746) (Pl.)

Y

Yakimoff, W. L., 786 (Z.), 803 (Und.) 868 (K.A.), (987) (Mal.)
——, Joukowsky, A., & Schirwind, S., (431), 927 (Misc.)
——, & Solowzoff, A. S., 878 (R.F.)
——, & Wassilewsky, W. J., (431) (Misc.)
Yamada, S., 233 (Hel.)
Yamaguchi, S., 617 (Hel.)
Yamaguti, K., 476 (Z.)
Yanagisawa, S., with Oyama, 372 (Chl.)
Yokogawa, S., with Cort, 208 (Hel.)
Yomanouchi, T., (373) (Chl.)

Yorke, W., 572 (K.A.)
——, & Adler, S., (165) (Lep.)
——, with Stephens, 324 (S.S.)
Yoshida, S., 223 (Hel.)
Yoshioka, M., 724 (Dys.)
Young, C. J., 460 (Z.)
Young, C. W., & van Sant, H. M., 572 (K.A.)
Young, T. C. M., 94, 567 (K.A.)
Yugo Slav Malaria Commission, 557 (Mal.)

Z

Zabolotny, D. K., 358, (746) (Pl.), 372 (Chl.)
Zapata, C. E., 145 (Y.F.)
Zeller, H., 136 (R.F.)
Zenin, A., 875 (K.A.)
Ziegler, M. V., with Maxcy, 963 (Mal.)
Zielaskowski, M., with Leichtentritt, 337 (S.S.)
Zilva, S. S., 80 (Avit.)
——, with Drummond, (520), 763 (Misc.)
——, ——, with Coward, 763 (Misc.)
Zironi, A., 494 (Lep.), 697 (S.S.)
Zlatogoroff, 877 (R.F.)
——, Gorodkowa, A. A., & Karetnikowa, W. W., 717 (Dys.)
Zotta, G., 444 *bis*, 788 (Z.)
Zuelzer, M., 143 (Jaun.)
——, with Uhlenhuth, 582 (Jaun.)
Zwanck, A., with Carbonell, 627 (Hel.)

INDEX OF SUBJECTS.*

Compiled by MISS M. H. JAMES.

AMOEBIASIS (AMOEBIC DYSENTERY, LIVER ABSCESS, *&c.*), 106–28, 400–15, 703–32, 1002
Amoebae and Entamoebae associated with
Cysts, Plasmolysis in, **712**
Intestinal: Morphology, **714**
Non-Iodophil in Pigs, **113**
dysenteriae in
Bone Marrow in Arthritis Deformans, Mitosis in, **713**, 1002
Lymph Glands in Hodgkin's Disease, Mitosis in, **713**
AMOEBIC DYSENTERY, **106, 413**
in Cat: Effect of Stasis on Development, **400**
Carriers: German Navy, 703
Investigation of: Manila, 722
Complement Deviation in, **114**
Complications, **400**
Diagnosis, **107**
Biliary Test in, **703, 714**
with Gangrene of Hepatic Flexure of Colon, and of Liver, **401**
Hodgkin's Disease after, **111**
Incidence
Class, **703,** 728
Geographical
Australia, 728
Dutch East Indies, 413
England, 728
Indigenous, **714**
Federated Malay States, 412, 413
Kenya, 510
Morocco: Association with Malaria, **908**
Nigeria, 510
Shanghai, **106,** 728
Sicily, 111
South Africa, 512
Sydney, N.S. Wales, 413
U.S.A., 107
West Indies, 125
in Women, **714**
Infantile: Treatment: Calomel, **714**
Latent and Chronic, **111**
Amoebiasis—*cont.*
AMOEBIC DYSENTERY—*cont.*
Obscure Forms, **400**
Surgical Aspects, **107**
Titles of Papers briefly Noticed, 114–15
Treatment, **107, 402**
Refractory Cases, **708**
Various Methods
Alcresta and Emetine, **112,** 509
Calomel, **113, 714**
Chatelguyon Water, **703**
Emetine Injections, **112**
Emetine-Bismuth-Iodide: Solubility, **404**
New, **113**
Stovarsol: Rapid Cure, **712**
Surgery, **106**
Two Methods, **404**
Yatren, **112** *bis*, **405** *ter*, **712**
AMOEBIC HEPATITIS
Acute; Fever Masking, **401**
Classification, **109**
Obscure form, **704**
Suppurative, Cured by Emetine, **705**
in Switzerland, **704**
AMOEBIC PULMONARY ABSCESS
Cured by Emetine, **708**
AMOEBO-SPIRILLARY, **126**
LIVER ABSCESS, **108**
Arneth Index, **110**
Diagnosis, Radioscopic, Insufflation of Abdomen and, **704**
Incidence
Australia, 728
Caracas, **108**
Morocco, 108
West Indies, 125
Large: Treatment, **707**
Rupture into Abdominal Cavity, **110**
Small: Diagnosis of, Emetine Test in, **401**
Treatment, 108, **110**
Aspiration, **705, 714**
Emetine, **108, 110, 705**
Operation: Report of, 100, **706**
Rogers's Method, 109

* The Numbers in heavy type refer to the titles of papers summarized.

AVITAMINOSES, 78–81
in Pigeons
Auto-immunization, **80**
Treatment by Intestinal Microbes, **80** *bis*
Polished Rice Disease, Experimental, in Pigeons: Treatment, **80** *bis*
Vitamin-Activated Fuller's Earth: Preparation, **79**
Vitamin(s)
B Distribution, **78** *bis*
Inactivation of, **80**
Preservation of, **79**
Products, Activity of: Physiological Test, **79**
Proprietary, Experiments with, **81** *bis*
Rôle of, in Tropical Diseases, **81**

BERIBERI AND POLYNEURITIS AVIUM (*see also* **AVITAMINOSES**), 389–95, 812–17
Acidosis in, **816**
Drought-induced, 852
and Epidemic Dropsy, **812**
Epidemic Dropsy Type [Allahabad], **814**
Etiology, **389,** 395
Incidence: All Forms
Geographical
Brazil, 389
Cabo Verde, 852
Gabon, **389**
India: Allahabad, 814
Japan, 395
Mesopotamia: Kut, 53
Philippine Islands, 390
[Venezuela]: Problem of, **395**
Race: Senegalese, 390
INFANTILE
Blood-Findings in, **816**
Prophylaxis and Cure by Tikitiki Extract, **390**
Lipoid-Metabolism in, Significance of, **391**
Lipochromes as Vitamins, **391**
Obscure Form, **390**
and Pellagra, Combined, **905**
POLYNEURITIS AVIUM
Action in, of Rice Embryo, **394**
Biochemical Properties of Pigeons' Blood in, and in Starvation, **393**
Nerve Lipoids from, Electrical Exam. of, **816**
Polished Rice Disease and Experimental Destruction of so-called Beriberic Vitamin, **394**
Post-operative, **390**

Beriberi—*cont.*
in Rats, Bone Lesions of, **394**
Rice, Century-old, Nutrient Value of, **814**
Korintji, D.E.I., Tests of, for Vitamin B, 21
So-called, of Monkeys, &c., **392**
Title of Unnoticed Paper, 395
Urine Analysis and Metabolism, **816**
Antineuritic and Antiscorbutic Vitamins in, **393**
Double Refractory Lipoid in, **391**
Vitamin Value of Food Stuffs, **814**
Vitamin B Deprivation: Experimental Studies, **815** *bis*, **816**

BLACKWATER FEVER, 71–74, 353–6
Blood Transfusion in, **73, 74** *bis*
Cases, **355,** 509, **883**
Clinical Observations, **72**
Complicated by Retinal Haemorrhage, **355**
Diagnosis, Differential, 647
Etiology, **71, 72**
Incidence
Geographical
Bengal, **292**
Congo, Belgian, **353,** 355
Dahomey, 749
Nigeria, 509, 510
Papua, **72**
Portuguese E. Africa: Epidemiology, 1901–20, **958**
Senegal, 71, 73, 353
Uganda, **72,** 355
Race, 72, 73, 74
Kidneys in, Minute Pathology of, **73**
and Malaria, 71, **74,** 292, **964**
Micro-organisms in Liver, 72
Pathology, **356**
Spirochaetes in Blood in, **138** *bis*, **353** *ter*
Erratum, **202**
Title of Unnoticed Paper, 74
Treatment, **73** *bis*, **74, 356**
Calmette's Anti-Venom, **356**
Experimental, **71**
Gouzien's Method, 949 *& n.*

Bubo, Climatic, 665, 666 *bis*
Histological Changes, **902**
and Lymphogranuloma, **35, 666**
Velez: Bogota, **674**

Carrion's Disease, 810–11

Cerebrospinal Meningitis
Incidence: Belgian Congo, **43**
Prophylaxis, 43

CHOLERA, 366–73, 736–40
Acidosis of, and its Therapy, **368**
Arneth Count in, and in Healthy Bengalese, **371**
Bacteriaemia of, and Recovery of Vibrios from Bile, **370**
Bacteriology
V. cholerae
with Atypical Colonies Spontaneously Agglutinable, **372**
in Carriers: Localization, **736**
Cases in which Not Found, **367**
Cultivation
Iod-Phenomena in, **369**
New Medium, **369**
Endotheliotoxin of, **739**
Fate of, in Pfeiffer's Phenomenon, **369**
Infection and Immunization Experiments with, **370**
Modes of Entrance and Exit, **737**
Nature of, **739**
New Biological Reaction of, **372**
Serological Relationships to, of the Paracholera Vibrios, **370**
Strains
Atypical: Action on Sugars, **738**
Japanese, &c., 1921, **739**
Woronesh, **372**
Survival for 10 years in Peritoneal Fluid, **740**
of Tchilinguir, **372**
Bacteriolysant in Cholera Patients' Intestine, **740**
Carriers, Healthy, 367, 371
with Complications, **368**
Diagnosis
Rapid Method, **738**
Starch Peptone Water: Value, **739**
Dysentery Misdiagnosed as: Mesopotamia, **764**
Histopathology of Intestine in, **739**
House Infection, **906**
Incidence
Geographical
Dutch East Indies, 736
India
Bengal, **371**
Coalfields, 736
N.W. Frontier Force [Epidemic], **366**
Persia, 366
Philippine Islands: Epidemiology, **736**
Russia, **366,** 372

Cholera—*cont.*
Incidence—*cont.*
Race and Class
Polish Army (1920–21), **367**
Infection, Influence on, of *B. proteus*, **370**
Leucocytic Counts in, and in Healthy Bengalese, **371**
Muscle Changes in, **371**
Pathogeny, **737**
Prophylaxis
Anti-Cholera Vaccine
Dried: Preparation, **595**
in D.E.I., **736** *bis*
per os, **372**
Essential Oils: Value, **736**
Starvation Diarrhoea mistaken for, 53
Stools, Lytic Principle in, for Shiga's Bacillus, **370**
Poisonous Constituent in, **739**
Titles of Unnoticed Papers, 373, **740**
Treatment by Essential Oils: Value, **736**
Vaccine, Sensitized, Duration of Efficacy of, **372**
Vibrio-spirochaetic (Vibriothrix) Pseudosymbiosis, **908**
Without Vibrios, **367**

DENGUE, 383–5, 388, 804–7
Etiology, **804**
Fevers resembling, *see under* **FEVERS, UNCLASSED**
Incidence, Geographical
Japan, **805**
Macedonia, 383
Nictheroy, **805**
Pescadores, **805**
U.S.A., 804, 805
Galveston (Epidemic, 1922), **804**
Louisiana, **383**
[Vienna], **383**
Insect Vectors, 299, 383, 384
or Pappataci Fever, at Beyrouth, **384**
Research: Oct.–Nov., 1922, **805**
[Survey of its Literature], **383**
versus Malaria, **299**

DERMATOLOGY, TROPICAL, 277–90
DISEASES
Blastomycosis: Local, **279**
Blue Stains in Man: Causes, **290**
Dermatitis
Insect, 472, 800, 801
Plant, **283**
Salvarsan, **653**
Verrucosa and Leishmania [Brazil], **278**
Dermatomycoses
Madagascar, **278, 279**

Dermatology, Tropical—*cont.*
DISEASES—*cont.*
Dermatomycoses—*cont.*
Manchuria, **277**
[Porto Rico], **277**
Granuloma inguinale
First Case: Peru, **287**
with Lesion of Lower Lip, **286**
[Non-Tropical], **288**
Treatment by Tartar Emetic, 286, **287**
Ulcerating
Tripoli, **286**
U.S.A., **287**
Mycetoma
Black-grained
Mauritania, **280**
West Africa, **280** *bis*, **282** *bis*
of Foot: South Africa, **282**
of Leg: India, *Streptothrix* n.sp. from, **282**
Red-grained
Mauritania, 281
West Africa, **280** *ter*
White-grained: Algeria, **282**
Otomycosis, Brazil, **279**
Pemphigus: Treatment by Chaulmoogra Oil, **289**
Phagedaena: Tripoli, **283**
Treatment, **285**
Solar Radiation, **284**
Prevalent in Libya, **277**
Rhinoscleroma
Brazil, 429
D.E.I., **683**
Ringworm due to *Trichophyton crateriforme* [Peru], **277**
Sporotrichosis: Madagascar, **659**
Sporotrichum Carougeaui n.sp., Madagascar, **659**
Ulcer, Chronic Venereal, **285**
Ulcus tropicum
North Palestine, **284**
South Africa: *B. fusiformis* present, 511
Treatment by Vaccinotherapy, **285**
Veldt Sores: Treatment by Antidiphtheritic Serum, **286**
Xeroderma pigmentosum and Light Rays, **290**
Tunis, **290** *quat*
PARASITES, FUNGI, &c.
Cladosporium Wernecki, **280**
Endomyces molardi n.sp., Sub-Dermal Abscess due to: Madagascar, **278**
Hermodendron Fontoynonti n.sp., 279
Madurella mycetomi: Culture, **280**

Dermatology, Tropical—*cont.*
PARASITES, FUNGI, &c.—*cont.*
Sterigmatocystis Hortai n.sp., from Brazilian Otomycosis, **279**
Streptothrix n.sp., from Mycetoma of Leg: India, **282**

DYSENTERY, BACILLARY, CILIATE, FLAGELLATE, MIXED AND UNCLASSED, 115–28, 406–12, 714–32
BACILLARY, 115–25, **413,** 714–26
Acute: Rhubarb in, **411**
Asylum and Allied Forms, **720**
Bacilli associated with *dysenteriae*
Classification, **119**
Differentiation, **116, 117**
Flexner: Persistent Infection, **117**
Inagglutinable: Behaviour towards Anti-Flexner Bacteriophages, **725** *bis*
Flexner Group: Standard Agglutinable Cultures of, **409**
New Culture Phenomenon, **122**
Non-Acid, **725**
Shiga: Autolysis, 123, **124**
Bacteriophage of, 123, **124**
Lytic Principle for, got by Filtered Culture of *B. coli*, **726**
Reduction by, of Amino-Acids into Amines, **410**
Toxins of, and Immunization against, **120, 121**
Separation of, **723**
Sonne Type, **409**
Toxin of, Soluble, **724**
Variations, **119, 120**
Variations in Sugar Fermentation by, **724** *bis*
Y Epidemic, Breslau, **721**
metadysentericus: Virulence in Rabbit: Resistance to Sunlight, **725**
paradysenteriae X [East Prussia], **409**
Bacteriological and Clinical Consideration of [All ages], **714**
Escherichia braziliensis in: Brazil, 408, 719
Organisms of Dysentery-coli Group, Relation of Growth of, to H-ion Concentration, **412**

Dysentery—*cont.*
Bacillary—*cont.*
Blood Picture, **728**
Carriers, **117**
Chronic, **408, 719**
Morbid Anatomy, **721**
Dysenteric Intoxication of Rabbit by Ingestion of Soluble Dysenteric Toxins, **410**
Dysentery Agglutination in Children, **723**
Antitoxic Serum, Titre of, Estimation of, **411**
Toxin, Nature of, **411**
Etiology, **717**
Incidence
Age: Children, **704, 718,** 719
Asylums, 728
Floor Treatment, **720**
Geographical
Australia, 728
Adelaide, 718
Sydney, N.S.W., 413
Breslau: Y Epidemic, **721**
D.E.I., **408,** 413, 719
F.M.S., 412
France, Aisne, **406**
Glamorganshire, **406**
Kenya: Decrease, 510
Petrograd: Epidemic, 1920, **717**
Rio de Janeiro, 116, **408, 719** *ter*
Saarbrucken and Saarlouis Districts, 1914–20 **717**
Shanghai, 728
Tunisia, Southern, 115
U.S.A., 117
Intestinal Bacteriophage, **721**
Intoxication with, of Guinea-Pig, **122**
Misdiagnosed as Cholera: Mesopotamia, **764**
Pathogenesis, **715**
Prophylaxis, 412
Vaccination *per os*, **115**
Spread by
Carriers, **117**
Convalescents, 117
Stools: Serological Properties, **121**
Treatment of Acute, **118**
Various Means
Rhubarb, **411, 722**
Serotherapy, **118** *bis*, **719**
Vaccinotherapy, **722**
by Mouth and Skin in Rabbits, 722 *bis*
Ciliate, or Balantidiasis
Balantidial Colitis [Budapest], **415**
in Chimpanzee, Berlin, **127**

Dysentery—*cont.*
Ciliate, or Balantidiasis—*cont.*
Incidence
[North Africa], **127**
West Pacific, 7
Flagellate
Pathogenicity and Treatment, **414, 731**
Treatment
Novarsenobenzol orally, **732**
Helminthic: Madagascar, 731
Mixed and Unclassed, 125–6, 412–15, 726–32
Bacilli of: Localization of, in Carriers, **736**
Classification by Causation, 107
Clinical and Therapeutical, **732**
Cystic Dysenteric Colitis, **732**
Colon-Perforations due to Dysentery, **730**
Diarrhoea, Chronic, in Invalided Persons from D.E.I., **413**
Epididymitis in, **764**
Gastro-Enteritis in Sydney Children's Hospital, **413**
Incidence
Australia, **413, 728**
F.M.S., 513
Fez, **125**
Japan, **415**
Shanghai, **728** *bis*
South Africa, 512
West Indies, **125**
Infantile: Cerebral Symptoms, **415**
Medical Complications, **732**
Spirillary, **126**
Spirochaetal: *Vibriothrix zeulanica* in, **429** *ter*
Surgical Complications, **729**
Syndromes Cured by Anthelminthics, **731**
Titles of Unnoticed Papers, 128, 415, 732
Treatment, **126** *bis*
Trichomoniasis: Escomel Treatment, **414**

ENTERIC FEVERS IN THE TROPICS, 374–6, 747–8
Associated with Undulant Fever, **379**
Bacteriology
Bacilli associated with, Localization in Carriers, **736**
Soluble Toxins of, **724**
Incidence
Dutch East Indies, 748 *bis*
Federated Malay States, 513
Mauritius, 513

Enteric Fevers in the Tropics—*cont.*
Incidence—*cont.*
S. Africa, and Widal Reaction, 512
Tropics, **748** *bis*
Titles of Unnoticed Papers, 376, 748
Treatment by Lysed Vaccines, **906**
Widal Reaction, Value of, in Inoculated Subject, **375**
PARATYPHOID
B. paratyphosus B, Atypical, in Tucumán, **374**
TYPHOID
Bacteriotherapy and, **374**
Diagnosis by Haemoculture, **374**
Differentiation from Malaria, 646–7
Friedberger's Reaction in, **39**
Incidence
Geographical
B.E. Africa, 510, 511
Madagascar, 374
Morocco, 375
South Africa, 747
Race: Negroes, **374**, 747
Prophylaxis
Antityphoid Vaccination, 374, 514
of Moroccan Natives, **375**
Oral, **747** *bis*
Preparation of Dried Vaccine, **595**

FEVERS, UNCLASSED, OF THE TROPICS, 388, 804–7
Dengue-like
D.E.I., **805**
India, 383
of Far East, **388**
Guacarapá Fever, Typhus Fever of Venezuela, 17
Kedani Fever, 388
Kumaon (Typhus), **388**
Pseudo-Typhus: Annam, **807**
Serological Exams., **807**
Seven-Day: India, **806**
Typhus-like: Australia, **807** *bis*
Unclassified Epidemic, with Rash: D.E.I., Soemba, 22
Van der Scheer's
Differential Diagnosis, **807**
Nervous Symptoms, **388**

Gangosa
Etiology, **608**
Incidence
Haiti, **671**
Java, 608
Ladrones Islands, 608
Sumatra, 50
Nomenclature, **608**

Goundou, 34 *ter*
Histology, 34
on Ivory Coast, 35

HEAT STROKE, 67–70
Acclimatization or Immunity, **67, 70**
in Chimpanzee: Fatal, **70**
Immunity: Experiments, **67** *bis*
Incidence
Basra: in British Troops, **69**
Tripoli: in Sucklings, **67**
Treatment, Experimental, **67**

HELMINTHIASIS (*see also* **OPHTHALMOLOGY, TROPICAL, 85–91, 857–64** (Critical Reviews), 203–61, 339–45, 615–44, 933–57
Anthelmintic Medication: Present Status, **935**
Anthelmintics: Carbon Tetrachloride and Ol. Chenop., **936** *bis*
DISEASES, and Parasites associated with them
Diagnosis of, from Clinical Signs, **617**
Eosinophilia in, **251**
Helminthic Infections, *see also infra*
Common: Diagnosis and Treatment, **957**
Toxic Effects and the Endocrine Glands, **204**
Helminthological Investigations, **615**
Intestinal Parasitism, Helminthic Infections, or Worm Infestation in, and of
Gurkha Battalion, **934**
Japanese Students, **617**
Jerusalem, **933**
Mauritius, 514
Military Police: Rio, **616**
Natives, African: Cancer due to, 23
Belgian Congo, **934**
Nigeria, 509–10
South Africa, 511
Nematode: U.S.A., **203**
Human and Animal: Through Skin, **228**
Philippine Islands, **203**
Senegal, **615, 616**
Soldiers: Siam, **617**
Treatment, **627**
Anthelmintics: Recent Work on, **205**
Carbon Tetrachloride, **206** *bis*, **207, 628**

Helminthiasis—*cont.*
DISEASES—*cont.*
Intestinal Parasitism, &c.—*cont.*
Treatment—*cont.*
Ol. Chenop., Aural Disturbance after, 63–4, **64**
Toxicity, **63, 64**
ANKYLOSTOMIASIS
Anaemia in
Cause, **251**
Tropical, **642**
Anthelmintics: Chemical Composition and Therapeutical Value, **253** *bis*
Bibliography, **643**
Blood Count in, **251**
on Cacao and Sugar Estates: Epidemiology and Effect of Control Measures, **243**
Critical Survey, **638**
Diagnosis, **640**
Mass, of Ancylostome Infection, **947**
Dietetics, **639**
Domestic Chickens and Pigs as Spreading, **243** *bis*
Experiments in Infection of Monkeys: D.E.I., 21
Incidence, Geographical
Australia: Campaign against, **954**
Queensland, 345
Brazil, 1918–20, **951**; 1922, **953**
B.E. Africa: Lamu, **230**
British Guiana, 340
Ceylon, 342–4
Colombia, **642**
Ecuador, **639**
Federated Malay States, 56
French Guiana, **247, 640**
India: Intensity, in relation to Humidity, **640**
Calcutta: Report of Research Lab. on, **250**
Indonesia, **248**
Java, 638, 985
Batavia, **245**
Moyobamba, Peru, **247**
New Guinea, 954, 955
Nicaragua, 339–40
Panama, 339
Papua, 954
Penang, **641**
Porto Rico, 949, 950
St. Lucia, 340–1
Samoa: American, **955**
Seychelles, 341–2
Siam, 344
Trinidad, 242, 243, 244, 341, 949

Helminthiasis—*cont.*
DISEASES—*cont.*
ANKYLOSTOMIASIS—*cont.*
Incidence—*cont.*
U.S.A. (Army) and Morbidity, **248** *bis*
Venezuela: Depopulation due to, **246**
Parasites associated with
Ancylostoma
Detection by Plate Culture, **252**
Eggs, Cultured in Faeces; Breakdown Point and Intense Acidity, **951**
in Faeces: Counting Method, **950**
and Larvae, Conditions under which Developing, **949**
Number in Faeces and Number of Adults in Host, relation of, **951**
in Stools and Worms Harboured, Compared for Number, **249**
Larvae, Infective in Soil, Isolation Apparatus for; Position, Migration, Presence, Length of Life, &c., **242, 244–5**
Invasion into Tissue of Various Animals: Fate, **956**
Life-length Variations, in those from Different Persons, **950**
Unsheathed, **242**
Vertical Migration, **949**
and other Nematodes: in Filipinos, **639**
braziliense, and *A. ceylanicum*, **639**
duodenale, **246**
Secondary Anaemia due to: Treatment, **260**
Necator: Description, **949**
americanus-like in Pigs: Amazonas, **252**, 956
suillus, **949**
in Persons Cured 5 Years Ago, **640**
Pigs in relation to, **243, 956**
Prophylaxis, **640**
Control, **949**
Factors in, **249**
Investigations, **240**
Experiments: Japan, **246**
Hookworm Campaigns, **339** *sqq.*, **954, 955**

Helminthiasis—*cont.*
DISEASES—*cont.*
ANKYLOSTOMIASIS—*cont.*
Prophylaxis—*cont.*
Hookworm Campaigns—*cont.*
Rockefeller Foundation's, **339** *sqq.*, 642
and Soil Infection, **638**
Relation of, to Malaria, **56**
Schneider's Test in, **250**
Serum of: Haemolytic and Anti-haemolytic Substances in, **252**
Treatment, **639, 640**
Betanaphthol, **642**
and Thymol, **642**
Carbon Tetrachloride, 206, 207, **256** *ter*, **641** *ter*, 642, **956**
Toxic Effects, **257**
Ol. Chenop., Action, Dangers, &c., **258** *ter*, **259** *ter*
Mass, **253, 254**
at Penang, **641**
Thymol: Death after, **259**
Vermifuges, Various, **255**
ASCARIASIS
Complement-Fixation Test in, **237**
Erythrocyte Resistance in, to Haemolytics, **237**
Incidence: Western Pacific, 7
Parasites
Ascaris (chiefly *lumbricoides*)
Development of, **237, 637**
Stages, in Liver Tissue, **947**
Disturbances due to, **238** *ter*
Eggs: Growth, Hatching, Infectiousness, **946** *bis*
Resistance, **946**
Experimental Infection with, **636**
Larval Wanderings, **236,944**
in Mice, **636**
Morphological Variations, **947**
Preservation outside Gut, **637**
Symptoms due to, **636**
of Pigs and Man: Experiments on, **235** *bis*
Recent Additions to Knowledge of, **235**
Surgical Conditions in, **238**
Treatment by
Combretum pilosum, **238**
Santonin, **239**
BILHARZIASIS OR SCHISTOSOMIASIS
Antigen in Complement-Fixation Test, **215**
Canine Infection, **221**

Helminthiasis—*cont.*
DISEASES—*cont.*
BILHARZIASIS—*cont.*
with Cutaneous Features, **212**
Early Indications of, **940**
Experimental Infection of Animals with Cercariae, **621**
of *Physopsis africana*, **621**
Fresh-Water Snails and, **216** *bis*, **218**; *see also* Mollusc Hosts, *infra*
Incidence
Geographical
Arabia, **621**
Australia: Possible, **622**
Brazil, 941
British East Africa, 511
China, **623**
Congo, Belgian, **218** *bis*, 512, 624, **939**
French, 941
Dongola Province, **620**
French Colonies, **619**
Guianas, the, **940**
Japan, **221** *bis*, 623, **942**
Mesopotamia, 941
Basrah, **939**
Morocco: Intermediate Host, **213**
Natal, 941
Philippine Islands, **623**
Portugal, **216, 217** *bis*, **218, 621** *bis*, **622**
Endemic Focus: Intermediary Host, **940**
Portuguese E. Africa, **216**
India, **216**
Senegal, **619**
Dakar, in Children, **939**
South Africa, **216**, 940
in Natives, **213**
Tunis, **619, 620** *bis*
Uganda, 941
West Indies, **219**
Occupational, 217
Pathology in Man, **622**
Personal Experiences of, **623**
RECTAL, 941
Rectal Papillomata in, **941**
Schistosoma (Bilharzia) associated with
Closely-Allied, Differentiation of, **941**
Mollusc Hosts, Actual and Possible, Various Lands (*see also* Fresh-Water Snails, *supra*) **213**, 511–12, **619** *bis*, 620 *bis*, **621, 622, 623, 939**

Helminthiasis—*cont.*
DISEASES—*cont.*
BILHARZIASIS, &c.—*cont.*
Schistosoma—*cont.*
bovis and *mansoni*: Intermediate Hosts, **941**
haematobium, 940, **941**
Cercaria of, Excretory System of, **218**
Infection, Perineal Route, **624**
japonicum
Cercaria of: Biology, **943**
Development in Final Host, **220, 221**
Eggs, Influence on, of Physical and Chemical Agents, **222**
Infections in Japan, **942**
Treatment by Emetine and Tartar Emetic, 221 *bis*, **623**
and Intestinal Cancer, 214
Migrations in Man, **942**
Per Os Infection Experiments, **220**
mansoni, Cercaria of: Morphology, **220**
Ova in Stools, Detection of, **219**
Treatment, **939**
Tartar Emetic, 212, **213, 214** *bis*, **215** *ter*, **623, 624** *bis*, 845, **943**
URINARY: Palestine, **212, 213**
BOTHRIOCEPHALUS Pernicious Anaemia, **222, 223**
CLONORCHIASIS
Blood Feature in, 212
Incidence
Japan, **211** *quat.*, **212, 938** *bis*
Johannesburg, **210**
Parasite: *Clonorchis sinensis*
Life-Duration in Dogs, **618**
Life-History: Prevalence, **210, 211** *quat.*
ECHINOCOCCOSIS = Hydatid Disease, **227**
of Brain, Experimental, **226** *ter*
of Cerebral Ventricle, **228**
Haemoclastic Crisis following Cyst Puncture, **227**
Hepatic [in Hindu], **944**
Intracranial, in Senegalese, **228**
Prevention: Buenos Aires, **627**
Primary, of Bladder, Question of, **228**
Sand, Effect on, of X-rays, 226
Treatment by
Arsenobenzol Preparations, 227
Tartar Emetic, 845
Failure, **227**

Helminthiasis—*cont.*
DISEASES—*cont.*
ELEPHANTIASIS, and *Onchocerca volvulus*, **632**
FILARIAL ITCH, **633**
FILARIAL THROMBOSIS of Lymphatic Duct, **631**
FILARIASIS AND MICROFILARIASIS
Drugs tested in, 5
Elephantiasis: West Pacific, 6
of Labium: [Siam], **233**
and Haemoptysis, **631**
Incidence
Age, 2
Geographical
Argentina: Tucuman, 631
British Guiana, 2
China, **231**
D.E.I., **631**
Hayti, 631
India, 630, 631
Puri, **230,**
Japan, **232**
Nigeria, Northern, 630
Sierra Leone, 630
West Pacific Isles, 5, 6
Mosquito-Spread, 6
Myositis in relation to, 27–9
Notes on, **630**
Parasites
Filaria and Microfilaria
Larva, n.sp., in Skin of Gold Coast Natives, **945**
Microfilariae in Blood, Common Complaints associated with, **630**
bancrofti
Action on, of "132," **945**
Distribution: D.E.I., **631** *bis*
and Japanese Mosquitoes, **233**
Periodicity, **233**
immitis in Dogs, Pathology of, 232
Loa loa
Development in Chrysops, 509, **632** *bis*
Dormant Infection, **233**
tucumani, **631**
Signs of, **630**
Statistics of, **230**
Treatment by Tartar Emetic, **231**
FLUKE INFECTIONS
Snail Destruction and, **207**
GNATHOSTOMUM SPINIGERUM Infection in Man: Siam, **629**
GUINEA-WORM INFESTATION
Extirpation of Parasite after X-ray Location, **234**

Helminthiasis—*cont.*
DISEASES—*cont.*
GUINEA-WORM INFESTATION—*cont.*
Treatment by
Antimony, Orally, **635** *bis*
Sugar, **946**
HOOKWORM, *see* ANKYLOSTOMIASIS, *supra*
ONCHOCERCIASIS
Dermal, **234**
Incidence
Congo, Belgian, 632
French, **633**
Guatemala, **633**
Parasite : *Onchocerca volvulus*, **632,** 945
OXYURIASIS, **637**
Parasite
Oxyuris vermicularis, and Appendicitis, **637**
Treatment by
Aluminium Subacetate, **239**
Combretum pilosum, 238
Salvarsan, **638**
PARAGONIMIASIS
Immunization Experiments, **209**
Incidence
Japan, **211** *bis*
Peru, 209
Parasite
Paragonimus westermanii
First Intermediate Host, **209**
Life-History, Pathogenicity, Prevention, **209** *quat.*, **210**
Prophylaxis, **210**
Treatment by Emetine Hydrochloride, **210**
PSEUDO-MENINGITIS, Helminthic, **204** *bis*
Ascaris-caused, **238**
RHABDITIS INFECTION, **229** *bis*
SCHISTOSOMIASIS, *see* BILHARZIASIS, *supra*
STRONGYLOIDOSIS
Due to *S. stercoralis* : Anaemia due to, **629**
[India], **629**
Parasites : *Strongyloides*
Detection by Plate Culture, **252**
intestinalis : Biology : Larvae, **229**
Haematuria due to, **229**
TAPEWORM Infestation : Is Neosalvarsan a Remedy for ? **628**
and Bladder Worm : Suppression : S. Africa, **625**
Identification Method for Tapeworms, **226**
Treatment by Betanaphthol, **944**

Helminthiasis—*cont.*
DISEASES—*cont.*
TRICHINIASIS, Epidemic : Erlangen, **239**
PARASITES, *see also under the various* DISEASES, *supra*
Found in
British Guiana, 935
North China, **934**
West Pacific, 7
Hepatic : Dakar, **207**
Ova, Collecting
Concentration Method, **617**
Gauze Filters for, **205**
New Method, **617**
Prevalent during the War, **203** *bis*
Rare Human : Philippines, **203**
Genera and Species Named
Dibothriocephalus latus, Experimental Infection with, of Cyclops of Lake Lucerne, **944**
Echinochasma perfoliatus, **208**
Fasciola hepatica, Causing Muscle Abscess, **937**
Fasciolopsis buski
Cercaria, Encysted of, Resistance of, **936**
Life-Cycle, **618, 936**
Ova : Development, Effect on, of Temperature, **618**
Heterophyes in Egyptian Mullet, **937** *bis*
nocens n.sp., **208** *bis*
Hymenolepis diminuta : Japan, **626**
in Man, **224** *bis*
nana : Life-History, **625**
and *H. fraterna* : Controverted Points, **625** *bis*
and *H. murina* : Development, **626**
Nematode(s) in Pigs, **229**
Technique : New Methods, **628**
Oesophagostomum apiostomum : Nomenclature, **239**
Sparganum mansoni, in
Fowls, **627**
Human Testicle, **627**
Morphology, **223**
Origin in Cats, **224**
Stamnosoma armatum n.g., n.sp., in Fresh-Water Fish, **208**
Strongylidae : Classification, **239**
Taenia nana, Egg, Resistance of, **225**
saginata (?)
Biology, **943**
Eggs : Resistance, **225, 943**

Helminthiasis—*cont.*
PARASITES—*cont.*
Genera and Species Named—*cont.*
Taenia nana—*cont.*
saginata (?)—*cont.*
Infection : Biological Diagnosis, **224**
solium, Meningitis due to, **626**
Trematode(s)
Hepatic, and Cancer, **214**
Indo-China : Life-Cycle, **618**
n.sp. : Japan, **208** *bis*
Parasitic to Fresh-Water
Fish : Japan, **208** *bis*
Molluscs : India, **207**
S. African Larval, and Intermediate Hosts, **938**
Prophylaxis : Septic Tank in Tropics, **935**
Titles of Unnoticed Papers, 260–1, 643–4, 957

Hookworm Campaigns, *see under* ANKYLOSTOMIASIS, *under* **HELMINTHIASIS**

Influenza
Differential Diagnosis, **807**
Epidemic, Filter-Passing Organism in, **607**
Incidence
French Colonies (1918–19), **604**
Malta : Bacteriological Exams., **902**
New Caledonia, **45,** 607
South Africa, 607
Necropsies, 41, 42

JAPANESE RIVER FEVER (Tsutsugamushi Disease), 386, 809–10
Causal Agent, **809**
Relation to Blood Constituents, **810**
Description, **386**
Incidence
Formosa, **386**
Japan, 386
Insect Transmitting, 386
Weil-Felix Reaction in, **810**

JAUNDICE, INFECTIOUS, 140–4, 582–4, 883–6
in Black Persons, **659**
Experimental in
Guinea-Pigs : Blood Exam., **586**
Kids, **141**
[Fatal Case], **141**
Incidence
Buenos Aires, **584**
Congo, Belgian, 139
French (Brazzaville), **142, 582**

Jaundice, Infectious—*cont.*
Incidence—*cont.*
D.E.I., **583** *bis*, **884** *bis*
London, **140**
Leptospira(s) (Spirochaetes), in
Blood, **884**
Unclassed Tropical Fevers [D.E.I.], **583** *bis*
Urine, **884**
Free-living in Water : Pathogeny, **143**
Pathogenic and other, **885**
icterogenes : Relation of, to Free-living Water Spirochaetes, **582**
icterohaemorrhagiae, **388**
Morphology : Reproduction, **884**
in Rats : England, Warsaw, Michigan, **584** *bis*, 886 *bis*
Meningitis in Children, believed to be Spirochaetal, **584**
Prophylaxis, **141**
Spirochaetosis icterohaemoglobinurica, **883**
Titles of Unnoticed Papers, 147
Treatment by Serotherapy, **141**

Juxta-Articular Nodules, 170, 177, **288** *bis*

KALA AZAR (Leishmaniases, All Forms), 92–105, 566–77, 865–76, 928
Adrenals, Possible Function of, in, **869**
Aldehyde Test, **570**
Antimony-Fast, **577**
Antimony Resistance and Intolerance in, **571**
Blood Infection, 868
Blood Sugar in Bengalese in, and in Health, **573**
Bodies in *Cimex rotundatus* : Assam, **104**
Canine : Virus of, Maintenance in Lab. Dogs, **573**
Clinical Picture : Analysis, **567**
Complications
Pulmonary Aspergillosis, **49**
Unusual, **869**
DERMAL OR CUTANEOUS (Aleppo Button, Biskra Button, Delhi Boil, Oriental Sore, Tropical Sore), **568, 875, 876**
American
Incidence
Brazil, 574, **576**
Venezuela, **575**
Pathology, **574**
Treatment by "Bayer 205," **576**
Appendicitis Attributed to, **575**

Kala Azar—*cont.*
DERMAL OR CUTANEOUS—*cont.*
Case with Three Lesions, **874**
[Delhi Boil in 1860], **576**
Etiology, **868**
Incidence
Algeria, 876 *ter*
India, **576**
Italy, 874, 875
Mesopotamia, **104,** 876
Basra, 874
Rio de Janeiro, **575**
Sahara, **574**
Syria, 575, 873, 876
U.S.A., **577**
Yucatan, **577**
Inoculation of, **873**
Resembling Lupus, **574** *bis*
Three Cases, **874** *bis*
Titles of Papers briefly Noticed, 105
Treatment by
Antimony Salts, **576**
Diathermy, **876**
Medical Means, **875**
Phosphorated Oil, **576, 874**
Stibenyl: Cure, **577**
Diagnosis by
Blood Culture, **98**
Bone-Marrow from Sternum, **97**
Removal of Marrow, **570** *bis*
Serum Reaction, **98**
Spleen and Bone Puncture, **97**
Etiology, **868**
Experimental, Acute: Pathology, **872**
Fatal Bleeding in, **577**
Formol-gel Test, **98** *bis*, **99** *bis*
Globulin Opacity Test, **872**
Incidence
Egypt (indigenous), **568**
France, **569**
India, 95, 566, 571, **573**
Assam, 94, **95, 104**
Nowgong, **865**
Bengal, **865**
Madras, **865** *bis*, **872**
Shillong, **869**
Spain, **99** *bis*, **568**
Sudan, **867**
Tunis, **96**
U.S.A., **577**
Indian: Leishmania in Intestinal Tissues, **95**
Insects and, 92–3 *et passim*, **95,** 873
Interesting Cases, **870**
Kala Azar, **577** *bis*
Leishmania (Herpetomonas) Associated with All Forms
Cells containing, **577**
Culture Media
N.N.N., **104**
Yoshida's, **103**

Kala Azar—*cont.*
Leishmania, &c.—*cont.*
Flagellate Forms, Reversion of, **103**
and Insect Flagellates, Relationship between, **867**
donovani in
Peripheral Blood, **572**
Urine, **868**
tropica: Biology, **573**
MEDITERRANEAN OR INFANTILE, **875**
Action in, of Leucocytic Agents, **869**
Cholesterin Diminution in, **100**
Diagnosis: Brahmachari Re-action in, **570**
Incidence
Dutch East Indies, 875
France, **569,** 571
Marseilles, **875**
Messina, **568**
Spain, **99** *ter*
Spleen Changes in, **99**
Treatment: Effect on Blood and Blood-forming Organs, **569**
Various Means
Tartar Emetic, 870, **872**
Tartras-Kalico-Stibicus: Cure, **875**
Onset, Season of, **567**
Problems, **92** *bis*
Research Work
Calcutta (1921), **93**
Shillong (1922), **566**
Review of Subject, **577**
Sequelae: Dermal Leishmanoid, **568**
Splenomegaly and, in Egyptians, **568**
Studies on, **868**
Transmission, **96, 866** *bis*, **873**
Treatment by
Antimony Compounds, **102**
Chemotherapy of, **568**
Toxicity of, **871**
"Bayer 205," **102, 572**
Stibenyl, **100,** 101, **571** *bis*
Tartar Emetic, 870, **872**
[in Albolene: Intramuscularly], **101**
Cures, 872
Evidence of, **871**
Intravenously, **101**
at Shillong, 869
and Stibiacetin, 100
in the Sudan, **867**
Wassermann Reaction, Positive, in, **873**

LABORATORY METHODS, 588–600
Bacteriological and Lab. Technique, **600** *bis*
Blood Count: Improved Method, **588**

Laboratory Methods—*cont.*
Histological Technique, **599**
Indol and Vosges-Proskauer Tests for Lactose-Fermenting Organisms, **596**
Lymphoidocyte and Turk Cell, **593**
Staining of, and by
Amoeba : Iron Haematoxylin, **592**
Benian's " Relief " Stain : Fallacy in Use where Congo-Red is Used, **592**
Blood
Giemsa's Stain, **590** *bis*
Vital, **590**
Iron Haematoxylin, **592** *bis*
Malaria Films, **589**
Spirochaetes : Silver Agar Method, **591**
Syringe for Blood Transfusion, **592**
Thick Film Method : Pros and Cons, **588** *bis*
Vaccine(s)
Dosage : Single *v.* Fractional, **595**
Dried, for Typhoid and Cholera : Preparation, &c., **595**
Old : Dosage Increase to make Use of, **596**
Production, Large Scale, **593**

LEPROSY, 148–65, 480–96, 821–34
Address on, by Rogers, **148**
B. pyocyaneus Infection Simulating, **487, 834**
Bacteriology, **154**
Bacillus of : Cultivation, **494**
Acid-Fast, " Defatting " of, **828**
Diphtheroid Bacillus in, **154**
Calcium and Phosphorus Elimination in, **492** *bis*
Care of Lepers [U.S.A.], **484**
Case of, **154**
Cerebrospinal Fluid in Lepers, **493**
Chaulmoogra Oil
Derivatives : Manufacture, **160** *bis*
Ethylic Esters of : Simple Method of Preparation, **923**
Sources, **828**
Cholesterinaemia in, **493**
Complement-Fixation Tests, **832** *bis*, 833
Cutaneous Innervation, **824**
Diagnosis, **491,** 834
Dissertations on, **488**
Early Lesions, **157**
Epidemiology, **496**
Erythrocyte Resistance, **834**
Etiology, **824**
Formol-gel and Hecht-Bauer Reactions in, **761**
Histological Changes, in Liver, Spleen, and Spinal Cord, **495** *bis*

Leprosy—*cont.*
Human and Rat, **825**
Incidence
Age : Children, **157, 480**
Geographical
Algeria, **823**
Basutoland, 165
Brazil, **482** *bis*, **823**
Pará, **150**
Rio de Janeiro, 480 *bis*
Calabar, 491
Cameroons, **163, 822** *ter*
Colombia, Problem of, **481** *bis*
Dahomey, **150**
D.E.I., 486
Egypt, 164
England, 154
Fiji, 162
France, **484**
French Colonies, **152**
Gold Coast, 165
Hawaii, **150, 151,** 152, 484
Chart, 153
Italy, 484
Libya, **277**
Mexico, 154
Nigeria, 509, 510
Norway, 483
Oesel (Esthonia), **149**
Philippine Islands, **831,** 832
Sardinia, **483**
South America, 152, 164, 495
Sudan, 164, **486**
Tanganyika, **483**
U.S.A., 152, 484
West Indies, 3
World-distribution, **480, 821**
Yunnan, 15
Infection : Probable Mode (*table*), **148**
Is it Increasing ? **152**
in Lepers' Children, **157,** *tables*, 158–9
Leprous Hyperostoses of Leg Bones, **487**
Keratitis Punctata, **486**
Reactions induced in Lepers by Smallpox Vaccination, **485** *bis*
Long Incubation, 154
in relation to Meteorology, **821**
Nerve Cases, **834**
Nodular, Atypical : Sudan, **486**
Ophthalmological Exam. of 350 Lepers, **486**
Parole System [Hawaii], **484**
Primary Manifestations, **485**
Prophylaxis : Various Means : Various Peoples, 3, 148 *passim*, 151 *bis*, **482, 483, 484, 824**
Rat, is it Transmissible to Man ? **156**
Sachs-Georgi and Wassermann Reactions in, **159,** 834

Leprosy—*cont.*
Serological Researches, **833**
Titles of Unnoticed Papers, 165, 496
Transmission or Spread, **148**
From Initial Lesions, **826**
Probable Mode of, **821**
Treatment, 149, **151, 162, 488, 491, 492, 827**
at Cameroons Leproseries, **163, 822**
and Cure, **487**
and Prognosis, **162**
Review of Recent Literature on, **834**
Various Means
Antimony, **491,** 513, 845
and Sulphur, **165**
Cantharides, 492
Chaulmoogra Oil and Derivatives, 149, 150, 151, 160, **161, 162,** 163, **488, 489** *bis*, **827, 828** *ter*
Copper Preparations, **490,** 491
Dietetic, **831**
Eparseno, **164** *bis*
Moogrol, 510
New Medicaments, **491, 830**
Trépol, **831**
Unusual Case, **154**
Wassermann Reaction in, **832**
X-Ray Appearances of
Hands and Face, 829 (*ill.*)
Hands and Feet, **154** (*ill.* 155)

MALARIA, 291–308, 551–6, **771–9** (Critical Review), 958–78
Acute Yellow Liver Atrophy, and Salvarsan, **299**
Addison's Syndrome and, **564**
"Aldehyde Test" in, **975**
Anisocytosis in Malarial Patient, **976**
Ankylostomiasis in relation to, **56**
Anopheles and: Bavaria, **305** *bis*
Palestinian, 961
Avian, Relapse in, Light as Cause, **302**
Treatment by Quinine, &c., **303**
B. coli-caused Fever Simulating, **977**
in relation to Blackwater Fever, *see under the latter head*
Blood in, and from
and Blood Picture, **976** *bis*
Preservation, &c., of, for Treatment of G.P.I., **975**
Sedimentation Rate, **562**
in Chimpanzees: Sierra Leone, **558**
Cinchona from Java, 556
Cinchona Febrifuge: India and Java, 301
Chronic, **294**
Radiostimulation in, of Spleen, **307**

Malaria—*cont.*
"Colloidal Shock," Phenomena of, **563**
Complement in, **303**
Complement Fixation in Tuberculosis in relation to, **201**
Congenital: Colorado, **559**
Dengue *versus*, **299**
Diagnosis
Differential, of Surgical Affections of Abdomen and, **966**
Thin Films, **564**
Diagnostic Sign, **564**
Double Infection, or Parthenogenesis, **977**
Early Paper on, Reviewed, **975**
Epidemic regarded as: Portuguese India, **556**
Epidemiology: Analysis, **298** *ter*
Epididymitis in, **764**
Epilepsy, possibly related to, **307**
Experimental: Observations, **295**
Eye Complications, **985** *bis*
Films: Staining, **589**
Formol-gel Test in, 975
and Hecht-Bauer Reactions in, **761**
Historical Review, **555**
Incidence
Age, 18
Children, **554** *bis*
Boy of Three, **967**
Geographical
Australia, **961**
Bamako: Endemic Index, **292**
Bavaria [Decrease], **305** *bis*
Bechuanaland, **967** *bis*
Belize, **293**
Brazil, 552–3
Rio de Janeiro, **557**
British East Africa, 510
Congo, Belgian, 553
Elizabethville: Endemic Index, **959**
Léopoldville: Index, and Quinine Prophylaxis, **959**
Corsica, **293, 977**
D.E.I., **556, 974** *bis*
Magelang, **293**
East Africa, 296
F.M.S., 457, 513, **556**
Quinine-Resistant, **301**
France, Autochthonous, **967, 977**
in Repatriated Persons, **294** *bis*, 554
French Niger, **555**
French West Africa, in Adult Blacks: Parasitology &c., **960**
Germany, **558**
Diagnosis: Treatment, **966**
Berlin, 297, **564**

Malaria—*cont.*
Incidence—*cont.*
Geographical—*cont.*
Gold Coast, 18–19
Haiti, in Marines, **563**
Holland, 965
North, **962**
India: Prediction of Epidemics, **555**
Bengal, **292**
Sawantwadi State: Survey, **292**
Italy, in the "Southern Problem," **294**
Rome, **564**
Mediterranean Shores, **294,** 977
Mesopotamia: Quinine-Resistant, **302**
Morocco: Association with Amoebiasis, **908**
Ouagadougou, Upper Volta: Dry Season, **976**
Endemic Index, **976**
Palestine
Antimalarial Advisory Commission's Proceedings (1922), **960**
Peru, **972**
Philippine Islands, **553,** 554
Porto Rico, 646–7
Portuguese E. Africa: Epidemiology, 1901–20, **958**
Russia, **564,** 961 *bis*
Pandemic, **557**
Saratov, **559** *ter*
Senegal, **555**
Dakar: Prevention, **307**
Kaolack, **960**
Various Seasons, **291, 292**
Spain, Câceres: Campaign against, **962**
Syria, Beyrouth: Campaign against, **977**
Transvaal, 564, 958
Veldt
Middle and High, **976**
Middle and Low, **291**
U.S.A. 552, **559, 966,** 967
Distribution indicated by Mortality Reports, **963**
Colorado, **559**
Missouri, **966**
S.E., Problem of, **963**
San Francisco, **963**
Yugo-Slavia, **557**
Race: Negroes, **553**
Influence of, on Wassermann and other Reactions, 31
Inoculation of, in Treatment of G.P.I., **973, 975, 977**
in D.E.I., **974** *bis*

Malaria—*cont.*
Latent
Activation by
Physical Agents, **560**
Salvarsan, **299** *quat.*, 307
Provocatives in Diagnosis, **295**
Malaria Index in French African Colonies, **555** *bis*
Stations [Russian], **961** *bis*
Malarial Polyarticular Rheumatism, **977**
Masked, **559**
Mosquitoes, Malarial, Control of, in Rice-fields, **305**
Naval History of, in the War, **964**
Paroxysms: Pathogeny, **563**
Pigment, Iron Reaction in, **563**
Plasmodia
Biology, **296**
Phagocytosis of, **559**
Pigment in, **303**
Situation in relation to Erythrocyte, **302**
Unity or Plurality, 294, **296**
falciparum, Infection, *see* Sub-Tertian, *infra*
Morphology, **297**
New (*P. ovale*), **296**
Polyneuritis, Severe Malarial, **976**
and Pregnancy, **307**
Prophylaxis (*see also* Research and), 564
Antimalarial Measures, Various Places and Methods, **305, 307, 960, 961** *bis*, **962** *bis*, **977** *bis*
American Research Lab., and Survey Section, Palestine, **960**
Quinine, **959**
Sanatoria in Malarial Regions, **964**
Quinine, Does it Act on Schizonts of *P. vivax* in Intraglobular Stage? **971**
Quinine Intolerance, **59, 60, 61**
Blood Transfusion for, **61**
Quinine-Resistant, **301, 302**
Iodine for, **562**
Quinine Tests, Simple, **561**
Relapses, **307**
Post-operative, 564, **976** *bis*
Research and Prophylaxis: F.M.S. and D.E.I., **556**
Sero-reactions of Syphilis in, **975**
Spleen and Blood Exam. in, **966**
Puncture Findings in, **965**
Splenic Index, **551** *quat.*, **553**
Splenomegaly, Excessive: Complications, **553, 967, 977**
Sub-Tertian
Diagnosis, **298**

Malaria—*cont.*
Sub-Tertian—*cont.*
Incidence
Germany: Relation to Salvarsan, **558**
Moscow, Indigenous, **564**
Treatment, **298**
Wassermann Test Positive in Fatal Case, **564**
in Surgery, **564**
Tertian, Benign
[Bechuanaland], **967** *bis*
Blood- and Parasite-Counts in, **965**
Titles of Unnoticed Papers, 308, 978
Transmission
Artificial, Lessons of, **974**
Pfeiffer's Theory on, **976**
Treatment, **564**, 968, 969 *bis*
in Malarial Valleys: Peru, **972**
Studies in, **968, 969** *bis*
Various Methods
Alkali with Quinine, **300**
Bad Kissingen [Chronic], **302**
Cinchonine, **561, 977**
for Infants, **971**
Harmala Alkaloids, **973**
Iodine, for Quinine-Resistant Cases, **562**
Quinine, 513, 968, 969 *bis*, 972
Abuse in Young Children, **554**
and Arsenic Alternatively, **560**
Compressed, **306** *quat.*, **969**
Excretion, **560**
Dosage for Infants, **301, 970**
Intramuscularly, **970**
with Magnesium Sulphate and Alkali, **971**
in Pregnancy, **560, 972**
Rectally, **970** *bis*
Radiotherapy, **562, 972**
of Spleen, **973**
Silver-Salvarsan, **561** *bis*
and Sulfoxylat, **561**
Standard, **970**
Visceral, **976**
with Unusual Symptoms, **300** *bis*

***MEDICAL ZOOLOGY,** 265–276; 418–421; 437–479; 780–802. *See also* Haemogregarines in Man, 527–550; 855
Acari, as Cause of Disease, 473 *ter*
Acariasis, from Grain, 473, 800
Accra, Mosquitoes and Rat-fleas of, 19
Adder-bite, Cases of, 475 *bis*
Aëdes calopus [see *Stegomyia calopus* and *fasciata*]
variegatus, Breeding-places, 6
Alofia (Linguatulidæ), Diagnosis, 273

Medical Zoology—*cont.*
Amoeba of Asclepiads, 450
of Latex and Experimental Liver Abscess, 787
of Lettuce, 450
Amoebae and Emetine, 438
of Euphorbias, Experimental Inoculation of Animals, 450
in Lymphogranuloma, 35
Amoebiasis, Rôle of the Helminths, 437
Animal Pests, Sanitary Control, 455
Anopheles bifurcatus, Egg Resistance, 793
breeding in *Pistia*, 457
Anopheles, Breeding-places, Character of Water, 265
Breeding Seasons, in F.M.S., 457
Classification of American Larvae, 458
claviger, in Caceres, 793
Control, Biological, 458
Duration of Malarial Infection, 266
Food Preferences, 789, 790
New Species of, 459, 793
of El Salvador, 793
Preferential Feeding, 789
Roubaud's Theory in Holland, 459
venezuelae suppressed, 793
Zoophilism, 266, 459, 790, 791
Anophelines of Siam, 793
Anophelism and Paludism, Beirut, 791
without Malaria, 790
Antielapine Serum, 476
Antiscorpion Serum, 476
Antivenene, in Dutch E. Indies, 478
Aploactis, Wound by Spines of, 421
Armillifer, Diagnosis, 274
armillatus, Infestation of Man by, 475
brumpti n. sp. (Linguatulid), 418
Asthma, due to *Pediculoides*, 473
Bacteria in Dog Faeces, 455
Balantidium, Dysentery, 127
Neuromotor Apparatus, 788
Species and Specific Hosts, 789
blattarum n. sp., 479
coli, Budding of, 449
and Pernicious Anaemia, 449
ovatum n. sp., 449
suis n. sp., 788
Beetle Preying on Mosquito Larvae, 793
Biological Survey of Texas, 455
Birds, Australian, Parasites of, 802
in Mosquito Control, 461
Blastocystis, Cultivation and Species of, 454
Affinities of, 453
Question of, 786
hominis, in Chronic Diarrhoeas, 786
Blood Parasites, Search by Triple Centrifugation, 439
Blowfly, *see* Calliphora

* The MEDICAL ZOOLOGY Section of this Index has been prepared by Colonel. A. ALCOCK, and a different system from that adopted for the other Sections has been followed.

Medical Zoology—*cont.*
Breeding-places of Mosquitoes, 265, 456, 458, 460, 791
Bullinus and Physa in Mediterranean Basin, 420
Cabbage Bug, Experiments with, 787
Calliphora, Resistance of Eggs and Larvae in Intestine, 466
Canine Faeces of London Pavements, 455
Caranx latus, Poisoning by, 420
Carriers and Microscopic Parasites, 437
Cattle in Anopheles Control, 266, 791
in Tsetse-fly Control, 268, 467, 468
Ceratopogoninae in Accra, 461
Attacking other Insects, 795
West African, Part 2, 461
Cestode Larva Parasitized by Microsporidium, 449
Chara, Mosquito Larvicidal Species of, 792
Charcot-Leyden Crystals in Coccidiosis, 447
Chiggers, Infestation by, 797
Chrysomyia, Myiasis by, 465, 796 *bis*
Chrysops and *Loa loa*, 267, 509
Cimex rotundatus, Bodies observed in, 104
Salivary Glands, &c., 474
Coccidia of Aquatic Birds, 788
The Discovery of the, 447
Coccidiosis of Cats and Dogs, 785
in Man, 447, 448
Cockroach, Balantidum of, 449, 479
Rôle of, in Disease, 471
Coconut Palms, Mosquitoes Breeding in, 792
Colorado Beetle, Supposed Poisonous Qualities, 472
Control of Insanitary Animal Pests, 455
Coprology, Microscopic, 456
Crab Louse, 474, 798
Creeping Myiasis in Russia, 467
Pseudomyiasis at Tamatave, 796
Crithidia in *Lyperosia thirouxi*, 444
Culicidae, Classification of, 792
Genitalia of, 792
Mites on, 792
Reared from Coconut Palms, 792
Salivary Pump of, 792
of Venezuela, n. spp., 793
Culicines of India, Revision, Part I, 461
Culture Diagnosis of Intestinal Flagellates, 440
of Flagellates in Latex, 450
of *Herpetomonas ctenocephali*, 440–1
Media for Leptomonas, 445 *bis*, 788
for Protozoa, 788
Cynocephalus (*Papio sphinx*), Haemogregarine of, 447, 540

Medical Zoology—*cont.*
Dermatitis due to Moths, in Japan, 472
caused by Larvae of Lepidoptera [in South America], 801
caused by Liparid Moth, in China, 800
Dermatobia hominis, Egg Porters of, 796
Dermatophilosis, 797
Destruction of Deer in New Forest, Unforeseen Effects, 268
Diesingia [Linguatulida], Diagnosis, 273
Dipterous Larvae, Nutrient Agar for Rearing, 457
Dog Faeces, Organisms in, 455
Dormouse, Plasmodium of, 445
Ear-tick Disease, 799
Echidnophaga gallinacea, in French West Africa, 20
Eimeria oxyspora, Human Infection, 448
snijdersi = *E. oxyspora*, 448
Embadomonas sinensis, Notes on, 444
Emetine, Action on Protozoa, 438
Entamoeba coli, Mitosis in Cysts, 787
histolytica, Normal Resistance of Intestine, 437
of Monkey (*Macacus rhesus*), 787
Enteromonas caviae n. sp., Growth and Culture, 788
Euproctis flava (Moth) Dermatitis, 800
Eye-fly, Pseudotracheal Teeth, 461
Fish, in Control of *Stegomyia fasciata*, 267, 460
"Mosquito-larvivorous," in Australia, 791
Poisoning by, on U.S.S. *Florida*, 801
in Virgin Islands, 420
Venomous Wounds by, 421 *bis*
Flagellates of Cabbage Bug, Experiments, 787
Flagellates, Culture Methods, 440, 441, 445, 450–1, 788
of Insects, 270
Pathogenic to Vertebrates, 784
New, in Human Intestine, 444
of Plants, 450
Fleas, of Accra, 19; of French West Africa, 20
Repelled by Sheep, 798
See also Rat-fleas
Flies, *see also* Housefly *and* Myiasis
Flies, Attraction by Fermenting Substances, 463
Chemotropic Reactions of, 463, 464
Distance of Flight, 269
and Infectious Disease, 462
Fumigants for Phlebotomus, 461
"Gastrophilus," Myiasis due to, 467
Genitalia of Mosquitoes, 792
Giardia
Action of Stovarsol on, 784
of Man and Tadpole, Comparative Study, 443

Medical Zoology—*cont.*
Giardia—*cont.*
of Man, Rabbit, and Dog, Relations of, 443
Giardia intestinalis, Staining Varieties of, 788
Giardiasis, Human, Criticism of Rodent Origin, 442
Glossina, *see also* Tsetse-flies
Artificial Breeding-places, Report on, 794
Control, 268, 467–8, 470–1, 794
Geographical Distribution, 471
Parasites of, 470
morsitans, 467, 468, 469, 794
palpalis, 467, 468, 469, 794
swynnertoni, Habits of, 469
n. sp. described, 470
schwetzi, New Observations, 470
tabaniformis, New Observations, 470
tachinoides, 468, 469, 794
Grahamella, in Dormouse, 445
in Macacus, 788
Grain, Acariasis from, 473, 800
Haematozoa of Wild Rats, 454
Haemogregarina of Baboon (*Papio sphinx*), 447, 540; *boum*, 541; *bovis*, 541; *cynomologi*, 539; of Dimand, 531; *elliptica*, 534, 535; *equatorialis*, 446, 539, 855; *gallica*, 447, 537; *hominis*, 530; *inexpectata*, 446, 531
Haemogregarines in Man, 527–50; 855
and Megalospleny, in Africa, 446
and Pernicious Anaemia, in France, 446
and Sarcocystis Spores compared, 529
Haemoproteus columbae, Spontaneous Disappearance of Infection in Pigeon, 445
Helminth Ova in Dog Faeces, 455
Parasites of Wild Rats, 454
Helminths of Western Pacific Islands, 7
Hereditary Transmission of Microbes, 471
Herpetomonas ctenocephali, Life-history and Reactions, 440
Culture of, 440, 451
Hippoboscidae, New Species of, 795
House-fly, Attraction to CO_2, 464
Biology (in Australia), 462
Biology under Aseptic Ménage, 463
Breeding in Cow-dung, 458
Chemotropism, 463, 795
Distance of Flight, 269
Duration of Life, 269
Entamoeba, &c., harboured by, 509
Fecundity and Longevity, 464
Oviposition in Panama, 463
Maggots of, Duration of Infectivity, 269
Ictonyx zorilla, Plasmodium, 446

Medical Zoology—*cont.*
Insect Flagellates and Leishmaniasis, 270
Pathogenicity to Vertebrates, 784
Insect "Nurseries" in W. Africa, 456
Intestinal Parasites in the Philippines, 781
Intestinal Protozoa, Effect of Carbon Tetrachloride, 784
Effects of Changes of Diet of Host, 438, 783
Relation of H-ion Concentration to, 781
in Malaya, 781
in 382 Patients in New York, 437
in the Philippines, 781
in Porto Rico, 780
in Western Pacific Islands, 7
of Wild Rats, 454
Untrustworthy Statistics, 437
Iodamoeba in Pigs, 7, 113, 787
Isospora of Man, Status of, 785
belli, new name, 786
hominis, Infection in S. Africa, 448
Name restricted, 786
Pathogenicity in Nigeria, 447
Ixodidae, Symbionts of, 474
Jarrina n. gen., Coccidiidae, 788
Kala Azar, Relation to Biting Insects, 95
See also under Insect Flagellates, *and* Leishmania
Kiricephalus (Linguatulida), Diagnosis, 273
Lamblia, *see* Giardia
Larvae of American Anopheles, 458
Lathrodectes mactans, Bite of, 801
Leiperia (Linguatulida), Diagnosis, 273
Leishmania, Cultivation of, 93, 103
Possible Insect Carriers, 93, 95
See also Insect Flagellates
Lepidoptera, Dermatitis caused by Hairs, 472, 800, 801
Leptomonas pyrrhocoris, Culture Media, 444 *bis*, 788
Leptus Larva Parasitic in Peru, 474
Leucocytozoon in Cell-nucleus, 788
Linguatula, Diagnosis, 274
Linguatulida, General Survey, 272–275
Linguatulidae, Synopsis of, 475
Linguatulids in Monitors, 420
Liponyssus Mite attacking Man, 800
Lithium Chloride, Action on Mosquito Larvae, 792
Louse and Heredity of Typhus, 270
See also Crab Louse
Lucilia, Myiasis due to, 796
Lyperosia, Crithidia in, 444
Maggots, Retention of Infection, 269
Malaria, Recrudescence in Attenuated Form, 790
Report, Federated Malay States, 457

Medical Zoology—*cont.*
Medical Zoology at Harvard, 9
of Western Pacific Islands, 6, 7
Medusa Venom, Effects of, 478
Microscopic Coprology, 456
Microsporidium in Cestode, 499
Mite Infestations of Man, in Australia, 799 *bis*
Mite-borne Diseases, 272
Mites found in Human Urine and Urinary Diseases, 473 *bis*
on Mosquitoes, 792
Mitosis of *Entamoeba coli*, 787
Molluscan Fauna of Big Vermilion River, 478
Fauna of Natal Lagoons, 802
Genera Bullinus and Physa, 420
Monkey (Macacus), Entamoeba of, 788
Mosquito Larvae, Chara destructive to, 792
Harbourages of, in Nigeria, 456, 509
Porters of Eggs of Dermatobia, 796
Reduction in Australia, 791
Mosquitoes and Drought of 1921, 793
Reared from Coconut Palms, 792
Musca domestica, see House-fly
Myiasis, Cutaneous, in Favus, 465
and *Wohlfartia vigil*, 467
Creeping, in Russia, 467
Pseudo-, in Tamatave, 796
of Frontal Sinus, 796
Intestinal, Experimental Studies, 466 *bis*
Nasal, 465, 796
New Treatment of, 796
Orbital, 467, 795
Subcutaneous, 465
in Tripolitania, 464
Nucleus of Protozoa and Regeneration of Cell, 439
Nurseries of Insect Life in W. Africa, 456
Nutrient Agar for rearing Dipterous Larvae, 457
Oestrid Larvae, causing Myiasis, 465, 467, 795
Ophthalmomyiasis, 795
Ornithodorus brasiliensis n. sp., 800
lahorensis and Relapsing Fever, 270
megninii, 799
moubata, Distribution in Congo, 471
normandi n. sp. (Tunis), 800
talaje and Relapsing Fever, 270
Otobiosis, the Ear-tick Disease, 799
Papers not Abstracted, Titles, 421, 479
Parasites and Carriers, 437
of Australian Birds, 802
of Rats, 454
Parasitology, Applied, in Paris, 456
Pediculoides ventricosus, Asthma caused by, 473
Dermatitis caused by, 473, 800

Medical Zoology—*cont.*
Pentastomida, *see* Linguatulida
Phlebotomus and Oriental Sore, 267
in Human Pathology, 795
perniciosus in Paris, 461
tejerae, new American sp., 795
Table of Species, 795
Toxic Vapours for, 461
Phthirius pubis, and Blue Spots, 474
Digestive Glands, 798
Physa and Bullinus Differentiated, 420
Pigs Infested with Iodamoeba, 7, 113, 787
Pistia stratiotes, Culicid Fauna of, 457
Plants, Protozoon Parasites of, 450, 787
Plasmodium of Dormouse, 445; of Ictonyx, 446
Poisonous Beetles, 472
Fishes, 420, 801
Moths, 472, 800, 801
Porocephaliasis, Human Cases in West Africa, 418 *bis*, 475
Porocephalus, Diagnosis, 273
Massive Infection of Civet, 419
Porto Rico, Mosquito Survey of Mayaquez, 461
Protozoa, *see also* Intestinal Protozoa
Protozoa, Action of Latex upon, 441, 787
and Protozooses, 788
Influence of Medium on Alkaloids Toxic to, 782
in Dog Faeces, 455
of Euphorbias Inoculated into Mice, 450
of Muscids Captured on Euphorbias, 450
Parasitic, in South Africa, 780
Regeneration of, 439
Vegetable Organisms mistaken for, 546, 547
Protozoal Diseases, Treatment of, 438 *bis*, 440
Pseudoparasites and Quacks, 456
Pseudotracheal Teeth of Eye-fly, 461
Pupipara, Observations on Larvae, 795
Raillietiella, Diagnosis, 273
Rat-fleas, Diagnosis of spp., 271
Distribution in Australia, 798
Distribution in India in relation to Plague, 269, 798
Rats, Ecto- and Endoparasites of, 454
Ray (Fish), Wounds caused by Spines, 421
Reighardia, Diagnosis, 273
Relapsing Fever and Ticks, 270
Report of Entomologist, India, 796; Nyasaland Protectorate, 470; Virgin Islands, 792
Rhinosporidium seeberi, Sporulation and Affinities, 451

Medical Zoology—*cont.*
Rhodnius domesticus n. sp. (Brazil), 474
prolixus and Transmission of Microbes, 471
Rickettsia, Distribution in Arthropods, 789
Salivary Glands, &c., of Cimex, 474
Pump of Culicidae, 792
Sambonia, n. gen., Linguatulida, 420
Sandflies, 795
"Sandworm" Disease, Antimony in, 472
Sanitation of Sibolga [Anopheles], 459
Sarcophaga, Myiasis due to, 465
Scomberomorus cavalla, Poisoning by, 420
Scorpion Antitoxin, 476
Scorpion Venom and Adrenalin Syncope, 477
Screw-worm Fly, Range of Flight, 269
Sea-nettle [Medusa], Stings of, 421
Seasonal Prevalence of an Insect, Prediction of, 789
Sebekia (Linguatulid), Diagnosis, 273
Shark-bite, Case of, 52
Sheep, Repugnance of Fleas to, 798
Simulium and Pellagra, 267
Sleeping Sickness in Tanganyika, Entomology of, 469
Snake, Antivenenes, 476, 478
Snake-bite, 475 *bis*, 478
Snake Venom, 478 *bis*
Action on Bulbar Centres, 476
Studies in Formosa, 476
Sphyraena barracuda, Poisoning by, 420
Spider Venom, 801
Spitting Snakes, 20
Stegomyia, *see also* Aëdes
Stegomyia, Indian Species, 461
calopus, Bionomy in Brazil, 460 *bis*
in Mexico, 792
in S. Peru, 461
Control of Larvae by Fish, 267, 460
fasciata, Effects of Deep Water on Larvae, 792
pseudoscutellaris, Breeding-places, 6
Sting of Medusa, 421
Sting-ray, 421
Subtriquetra, Diagnosis, 274
Tarsonemus (Mite) in Urine, 473
Tick-bite Paralysis, 272
Tick-borne Diseases, 270
Tick of Ear, 799
Ticks of Panama, Hosts and Pathogeny, 799
Titles of Papers not Abstracted, 421, 479
Toxin-producing Anaerobe from Fly Larvae, 918
Toxoplasma pyrogenes, 543
Treatment of Protozoal Diseases by Organic Salts, 440

Medical Zoology—*cont.*
Triatoma flavida in Cuba, 798
Tricercomonas, Growth and Culture, 788
Trichomonas Circulating in Blood, 784
Cultivation, &c., of, 441 *bis*
Parasitized by Sphaerita, 444
Triple Centrifugation for Isolating Blood Parasites, 439
Trombicula deliensis n. sp., Sumatra, 473, 800
Trombiculae of Sumatra and Pseudotyphus, 473, 800
Trombidiid Larva Dermatitis in Peru, 474
Trombidium akamushi, 272
Trypanosoma lewisi, Biometric Study, 788
Trypanosomes, Action of Latex on, 450
Tsetse-flies, *see also* Glossina
Tsetse-flies of French West Africa, 467
of N. Nigeria, Investigations, 468
Natural Infection, 469
First Report on, 794
Typhus Fever and Lice, 270
Urine, Mites in Human, 473
Venom of "Harmless" Snakes, 478
of Medusa (*Olindioides formosa*), 478
of Scorpion, Effects of, 477
of Spider, Effects of, 801
of Toad, Action of, 477
Venomous Fish, Wounds from, 421
Virgin Islands, Mosquitoes of, 792
Poisonous Food Fishes of, 420, 801
Waddycephalus, Diagnosis, 273
Western Pacific Is., Med. Zoology, 6–7
Wohlfartia, causing Myiasis, 465, 467
Xenopsylla, Characters of spp., 271
Xenopsylla astia, Bionomy of, 798
and Epidemiology of Plague, 269, 798
in West Africa, 474
cheopis and Plague Epidemiology and Mortality, 269, 798
Zootropism of Anopheles, 266, 459, 790, 791

MISCELLANEOUS, 1–66, 422–31, 509–20, 601–10, 645–84, 845–54, 891–927
Abscess at Navel from Penetration of Grass-Seeds, **44** *bis*
Acclimatization of European Race in Tropics, 14
Ackee Fruit: Gold Coast, Toxicity, 19
Acidosis in Stokers: Tropics, **763**
Actinomyces Salvati n.sp.: Madagascar, **658**
Actinomycosis of
Breast, **658**
Omentum, **509**
in Rat, **658**

Miscellaneous—*cont.*
Acute Abdomen in Natives [Basutoland], **921**
Alastrim, 3
or Amaas, **850**
Aloys Pollender, **852**
Amaas or Alastrim, **850**
Smallpox and, **851** *ter*
Amyloidosis : Java, **673**
Anaemia, Sickle Cell, **670**
Anaesthesia : Surgical, **429**
Anasarca : Epidemic, North Andamans, **47**
Aneurysms
Belgian Congo, 682
West Africa, **50, 655, 656**
Multiple, in Child, **50**
Anthrax in Man
French Guinea, **42**
Uganda, **42, 909**
Anthrax Bacillus, Discoverer of, 852–3
Antimonial Therapeutics, **845** *ter*
Antimony in Recent Medicine : Bibliography, **61**
Toxicity in Rabbits, **62**
Atropine Response, in White and Coloured Races, **55**
Autopyotherapy, **426**
Bacteria, Structure of Certain, **926**
Bacteriolysis of d'Herelle, **853**
Bacterium tularense : Cultivation on Three Mediums, **43**
Bats, African, as Lab. Animals, **425**
Betel Chewing : Effects, including Cancer of Mouth, **56**
Bismuth : Effect on Kidneys, **853**
Blastomycosis, Systemic [in American Negro], **426**
Blood(s)
Bilirubin-Content, **851**
Exam. by Wassermann and other Reactions, **31**
Filipino, Iso-Agglutinable Percentages of, **427**
Non-Protein Nitrogen of, Effect on, of Tartar Emetic, **845**
Occult, in Faeces : Tropics, **917**
Platelets and their Functions, **854**
Transfusion : Moss Formula, **852**
Yeast-like Bodies in Human Blood, **921**
Blood-Count, Differential, **425**
Body Tissues, Heating of, by Light and Heat Rays, **761**
Boerhaavia diffusa : Pharmacology : Therapeutics, **923**
Bronchomoniliasis, **656, 657, 905**
Broncho-pneumonia, Epidemic : Belgian Congo, **675**
Calf Lymph for B.E. Africa, 510

Miscellaneous—*cont.*
Cancer, All Forms
in Africa, India, and D.E.I., **24, 25**
in Algerian Woman, **26**
and Cancer of Liver in Natives, **23–7**
Deaths from : Cuba and Europe, 26
Etiology and Statistics : Cuba, **26**
of Gum and Liver [in Natives], **23** *bis*
House Infection, **906**
Intestinal, and Parasites' Ova, **214**
of Mouth, as due to Betel-nut Chewing, **56**
Primary, of Liver : India and D.E.I., **24, 25**
Vegetables in relation to, 26
Carcinoma, Hepatic, and Bilharziasis, **213,** 668
Epithelioma of
Eyelid, **927**
Oesophagus, **27**
Carbon Tetrachloride : Toxicity, **922**
Chlorine Secretion in Fever, **851**
Cinchona Alkaloids
Researches, **57**
Therapeutics, **763**
Climatology and Pathology : Fort Lamy, **682**
Colonial Medical Services, Training for, **900**
Complexion in Tropics, **610**
Countries and Places referred to : Diseases Prevalent in, &c.
Africa, Central : Tumour Frequence in Natives, **667, 668**
Algeria, **667**
Hot Springs, **429**
Annam : Bà-Na Sanatorium, Temperatures at, **753**
Anatolia : Field-Lab. Work, **897**
Australian Commonwealth
Australian Inst. Trop. Med., **927**
Encephalo-Myelitis, Acute : Epidemic, **649**
Townsville Institute, Future of, **13**
Tropical : White Settlement, **914** *bis*
Tropical Research, **13**
Belgian Congo, 512–13
Case Simulating Acute Articular Rheumatism, **673**
Native Pathology, 517, **675, 682** *bis*

Miscellaneous—*cont.*
Countries, &c.—*cont.*
Brazil
Climate : Diseases : European Immigration, **16, 429**
Fruits, **428**
Medicine, **901**
China, Chinese
Diseases Cured by Santonin only, 666
Foods, **609**
Materia Medica, **763**
Colombia
Bucaramanga Epidemic, **911**
Hygiene, **648**
Dahomey : Morbidity and Mortality, **749**
Dakar, Cancer at, **23** *bis*
Institute of Social Hygiene, **849**
Kolaism, 12
Native Lying-in Hospital and Polyclinic, Work of, **11, 12**
Dutch East Indies, 14, **22, 24, 25, 31,** 514, **663, 674, 753,** 849, 851–2
Acute Mental Disorders, **601, 924**
Aorta of Malay Men, **923**
Cholesterol Blood-Content, **425**
Circumcision, **683**
Mestizos of Kisar, **14, 915** *ter*
Native Psychoses, **601**
Splenic Anaemia, Splenectomy and, **609**
Tropical Med. Congress : Exhibits, **683**
East African Protectorate, 510–11
Ecuador, **850**
Egypt : Insanity, **602**
Far East, French Med. in, **15** *bis*
Federated Malay States, **513**
Far Eastern Assoc. Trop. Med. 5th Congress : Singapore, **519**
Singapore, Rickets in, **672**
Fernando Po, 24
Formosa, **752**
France : Spas : Value for Tropical Convalescents, **848** *bis*
French Equatorial Africa
Features, **750**
Native Recruits from Various Districts Compared, **749**
Gold Coast, **10**
Haiti, 894
Dog-wood Poisoning, **429**
Hygiene Lab., **894**
India, Epidemic Dropsy, **664**
Maternity Conditions, **482**

Miscellaneous—*cont.*
Countries—*cont.*
India—*cont.*
Calcutta, **755** *bis*
School of Tropical Medicine Report : Programme, **755**
Indo-China : Endemo-Epidemic Diseases (1921), **896**
Kenya : Education and Physical Development of White Children, **915**
Macao : Medical Climatology, **609**
Madagascar, **10, 658, 659** *bis*
Malta Command : Bacteriological Exams. in Influenza (1918), **902**
Mauritius, 513–14
Mongalla, **899**
Morocco : Population Stabilisation, **900**
New Caledonia : Niaouli Essence, 429
Nigeria, **509**
Deep Abscesses, **650**
Peru : Pulmonary Parasites, **752**
Philippine Islands, **424, 666, 672**
Bananas and Rice, **429**
Porto Rico, **751**
Diagnosis of Fevers, **86**
Rhodesia, Blondes in, Environmental Influences affecting, **758**
Russia [Tropical Institute], **18, 927**
Samoa : Encephalitis lethargica, **671**
Tattooing, **919**
Siam : Epidemic among Recruits (1923), **903**
National Immunity to Disease, of Natives, **919**
Sidi-Abdallah, Native Sailors from [Health of], **12**
South Africa, 511–12, **921**
Pseudo-Tuberculosis, 896
Rand Mines, Medical Services for Natives on, **13**
Toxicology, **763**
Spain : Parasitic Diseases, **754**
Syria and Lebanon, **900**
Tropics
Ether in, **852**
New Apparatus, **423**
Laryngeal Complications, **763**
South America : Climate and Health, **24**
Therapeutics in, **54**
Uganda, **42,** 515, **909**
U.S.A. : Massachusetts, **75**
Venezuela, 17
Medical Geography, **16**
Vital Statistics, 16

Miscellaneous—*cont.*
Countries—*cont.*
West Africa, 26, **426, 663**
First Congress of W. African Tropical Medicine, **519**
West Indies Medical Conf., 1–4
Sanitary Commissioner for, 1
Western Pacific: Medical Researches in the, **5–7, 891**
Yunnan-fu, **14**
Diabetes mellitus in Filipinos, **672**
Differential Leucocyte Count, **851**
Digitalis: Physiological Standardization, for Use in India, **65**
Diphtheria: Mauritius, 513–14
Carriers: Simla, **667**
and the Schick Reaction
Algiers, **667**
Philippine Islands, **666**
South African Natives Non-immune, **512**
Diseases in which Antimony is Employed, **61**
Tropical and Sub-Tropical, **17**
Doctors and French Colonies, **763**
Drought as Disease Factor: Cabo Verde, **852**
Ear, The, Care and Treatment of, in the Tropics, **424**
Nose, and Throat Cases in the Philippines, **424**
Ectodermoses: Immunity in, **7**
Neurotropic, **680**
Elephantiasis of Genitals with Gynaecomastia, **50**
Nostras: P.M. findings, **902**
Treatment by Kondoleon's Operation, **903**
Elephants' Hairs as Bougies, 54
Emetine: Cure by, of Simulated Articular Rheumatism, **673**
Dosage, Guide to, 54
Effect on Heart, **63**
and Emetine Poisoning, **668, 669** *ter*
Poisoning: Polyneuritis: Death, **62, 63**
Encephalitis lethargica: Samoa, **671**
Endocrine Glands: Importance in Trop. Pathology, **428**
Euglobulin Group and the Wassermann Reaction, **516**
Euphysol chininum, Research on, **762** *bis*
Exanthems, Acute: Spirochaetosis (hypothesized), **883** *bis*
Fibroma, Naso-pharyngeal, **927**

Miscellaneous—*cont.*
Filterable (Ultra-Microscopical) Viruses
Active Principles, **676**
Differential Centrifugation for Study of, **847**
Neurotropic
Filtration through Collodion Membranes, **925**
Physical Properties, **925**
Résumé, **8**
Finlay, Carlos, Memorial, Havana, **56**
Fish Oils and Fish Liver Oils, Vitamins in, **763** *bis*
Formol-gel and Hecht-Bauer Reactions in Malaria, Leprosy and Yaws, **761**
French Natives: Army of the Rhine, relative value of Contingents, **755**
Fungi, Higher: Visceral Infections due to, **49**
Parasitic: Venezuela, **49, 429**
Glanders in Man, **42, 927**
Goitre, Endemic, and Cretinism: Causation, **427**
Haemogram in Tropical Practice, **926**
Head Injuries and African Residence, 54
Heat Balance Sheet of Tropical Residents, **922**
and Digestion of Infants, **927**
Hypereosinophilia, Idiopathic, **918**
Immunity, General, Conferred by Local Immunization, **578**
Incidence and Incidence Rate, **854**
Inulin and Maltose: Mycological Method of Identification, **920**
Iodine Injections for Septic Conditions, **66**
Jamaican Dog-wood, **429**
Jaundice, Infectious, *see that head*
Obstructive: Port Sudan, **660**
Toxic: Andamans, **660**
Khesari Amine: Production: Pharmacological Action, **645**
Kohl, **919**
Lab. Animals, Cages for, **428**
for Tropical Research, **429**
Lathyrism, **904**
Cause, **46, 645**
Leucaemia, Lymphoid, of pure Splenic type, **428**
Liver Cirrhosis
and Cancer, D.E.I., 25
Etiology, **22**
Tropical: Pathology, **675**

Miscellaneous—*cont.*
Lymphogranuloma, Climatic Bubo and, **35, 666**
in Javanese, **36**
malignum, **905**
Maltosuria, **920**
Manson, Sir Patrick, **55, 56**
Margosic Acid and its Salts : Clinical Use, **762**
Maternity Hospital, Kisaran, Data from, **422**
Medical Geographical Map of the World, **648**
Medical Research : Aims : Economic Value, **927**
Medicine : Ayurvedic System : Merits, **920**
Oriental, Counter-Irritation in, **927**
Meinicke's Floculation Test and other Serodiagnostic Methods, **514, 515, 516, 517**
Melioidosis : F.M.S., 513
Meningitis, Pneumococcal
Belgian Congo, **39**
Optochin Treatment, **672**
South Africa : Classification of Pneumococci, **511**
Metabolism, Relations to, of Climate, Weather, and Fat Covering, **918**
Mice, Albino, Adaptation of, to Artificially-produced Tropical Climate, **759**
Microscope Instruction : Belgian Congo, 513
Multiple Haemorrhages, **671**
Mycoses(sis)
China, **635**
Pulmonary, **658**
Myositis, Description in Osler and McCrae's "System," 29
Tropical, in
Fernando Po, **27**
French Equatorial Africa, **28**
Nigeria, **650**
Papua, **29**
Uganda, **900**
Niaouli : Fungus Menacing, **429**
Nocardiasis, Disseminated, 49
Oedema
Java, **663**
West Africa, in Porters, **663**
Optochin in Pneumococcal Meningitis, **672**
Paget's Disease *plus* Breast Cancer in Male Sudanese, **27**
Persian Forces, North : Memorial Medal, 261
Pigmentation, Abnormal, of Colon, **910**
Plumbism : Blood Examination, **909**

Miscellaneous—*cont.*
Pneumococcus Infections, *see* **Pneumonia and Other Pneumococcus Infections,** *see also* Meningitis, *supra*
Poisons and Poisoning
Arsenical
Less known Methods of, **676**
Sequelae, **675**
Khesari Amine : Production : Pharmacological Action, **645**
Kodon, Acute, **676**
Yam, **51**
Pollender, Aloys, **852**
Pougues-les-Eaux, and Tropical Diseases, **927**
Pseudo-meningococcus from Iliac Abscess, **43**
Psychology, Native, **429**
Psychoses of Southern Negro, **55**
Quinine Anaphylaxis, **60**
in Blood, Nephelometric Estimation of, **59**
Hydrochloride, Solubility of, **59**
Intolerance, **846**
Necrosis of Muscle, **846**
Studies on, **845**
Subcutaneous Injections, Danger in, of Necrosis, **59**
Rats, Brown and Black : Introduction to Europe, 17–18
Rhino-pharyngitis mutilans, **50**
"Rickettsia" Bodies due to Lysis, **677**
Rubber Articles : Preservation in Tropics, **53**
Saccharomycete, Pathogenic to Guinea-pig in Human Lesion, **658**
Salvarsan Intrarectally, **65**
Poisoning, **610**
Sapodilla : Properties, **429**
Septicaemia from a *Pasteurella*-like Organism : Clinical Observations, **44** *bis*
Shark Bite, **52**
Sir Patrick Manson, **55, 56**
Skin-Grafting in Coloured Men, **848**
Spirilloses, Action in, of Bismuth, **910**
Sporotrichosis
Madagascar, **659** *bis*
Pulmonary, **426**
Sporotrichum Carougeaui n.sp., **659**
Starvation, Chronic : Effects
Indian Famine, 53
Siege of Kut, **52, 53**
Streptothrix Infection of Brain : Mesopotamia, 49
Sugars, Various, Detection of, by Mycological Method, **424**

Miscellaneous—*cont.*
Sun's Rays: Effect on Hats in Summer, **54**
Sweat Secretion in Man: Estimation, **683** *bis*
Teeth, Loss of, from Betel Chewing, 57
Tetanus: Venezuela, 17
Neonatorum, *ib.*, 17
Titles of Unnoticed Papers, 66, 430–1, 520, 684
Tonsillomycoses, **657** *bis*
Tropical Medicine
Classification and Nomenclature, **757**
Harvard University Course, **8**
Objectives, &c., **9**
Tularaemia Francis 1921: New Human Disease, **664, 665**
Tumours in Different Races: Deli, Sumatra, **24**
of Dental Origin [West Africa], **26**
in Natives [Central Africa], **667, 668**
Ulceration(s), Ulcers, Sores, &c.
Gastric: Sumatra, **674**
Sores, Phagedenic, Treatment by "189," **181**
of Throat, from Vincent's Spirobacillus: Belgian Congo, **45**
Treatment by Iodine Injection, 66
Vaccination by Neurovaccine, **847**
Vaccine
Cerebral, **7**
Pure, **7**
and Neoplasms, **847**
Vaccinia, Affinities, Dermo-, and Neurotropic, **7**
Vegetable and Human Pathology: Relations, **423**
Venereal Diseases, *see also* **Syphilis**
Incidence
D.E.I.: Army, **31**
F.M.S., 513
French Colonies, **651**
Uganda, 515
League for Combating: Bombay, *see under* **Reports**
Prophylaxis: Uganda, **650**
Treatment
Combined Salvarsan-Mercury, Intoxications from, **653**
Tartar Emetic, **30**
in Uganda, **650**
Vincent's Angina, **927**
Wassermann Reaction in the Tropics
Modifications and, **514–18**
Stable Haemolytic Serum for, **911**
Yam Poisoning, **51**

OPHTHALMOLOGY, TROPICAL, 497–508, 979–89
Amblyopia, Quinine; Pathogenesis; Special Reference to Ethylhydrocuprein Hydrochloride, **985**
Atrophy, Optic [Madras], **984**
Radiography in Doubtful Cases, with Special Reference to Pituitary Disease, **498**
Berger's Stereoscopic Lenses for Ophthalmic Practice, **979**
Blindness
among Filipinos: Causes, **508** *bis*
in Libya: Causes, **498**
Cataract, Black, **987**
Caused by
Electric Shock, **498, 988**
Lightning Stroke, **498**
Clinical Notes, **988**
in Sumatra, 989
Cataract Extraction
Capsule Lavage in, **987**
Complications after, **987**
Intracapsular, Vitreous Escape in, **987**
Madras Operation, 988
in Norway, **986**
Senile, in Capsule, **986**
Subconjunctival, **986** *bis*
Cataractous Lenses, Weight of, **988**
Conjunctivitis
Gonococcal, Epidemic [Indo-China], **979**
Habronemic: "Bung Eye": Australia, **503**
Koch-Weeks; Prophylactic Vaccination, **979**
Cysticercus Cellulosae, Intra-Ocular [South Africa], **984**
Subconjunctival
[Argentina], **533**
[Madras], **984**
Exophthalmos, New Kind: D.E.I., **499**
Eye in Beri-beri, **984**
Eye Diseases: 'Iraq, **988**
Filaria in the Eye, **500** *quat.*
Glaucoma: Baghdad, 988
Granuloma, Subconjunctival, Rare Form, **497**
Keratitis, Parenchymatous: Sumatra: Causes, 989
Neuritis, Retrobulbar, of Malarial Origin, **985**
Notes [West Africa], **506**
Ocular Complications of Malaria, **985** *bis*
Sparganosis, **501**

Ophthalmology—*cont.*
Ocular Diseases in the Tropics [Sumatra], **989**
Tumour, due to Lung Distoma, **503**
Onchocerciasis, Ocular: Guatemala, **501** *bis*
Ophthalmic Operative Clinic [China]: Abstract, **508**
Hospital, Madras, Practice of, **988**
Ophthalmological Inst., Hanoi, **506**
Hue, **507**
Soc. Egypt: Bull., 1921, **505**
Ophthalmomyiasis: Cape Verde Is., **502** *quat.*
Parenteral Milk Injections in Eye Diseases, **507**
Pigmentation of Corneal and Conjunctival Epithelium **497**
Titles of Unnoticed Papers, 989
Trachoma
Incidence
Algeria, 981
Annam, **980**
Index, **980**
Baghdad, 988
China, **981**
Madagascar, **981**
Minnesota, **981**
Tunis, **980**
Nature of, **983**
Obstinate: New Treatment, **982**
Prophylaxis, **981**
Treatment, **980**
Abadie Method, **982**
Operative: Excision of Fornix, **983**
Trichiasis and Entropion: Treatment by Lagleyze's Operation, **983**
Vitrex Glass, **499**

OROYA FEVER, 810–11

PAPPATACI FEVER, 383–5, 804–7
Fever resembling: Cuba, **806**
Incidence
Beyrouth, **385**
Georgia, and Neighbouring Regions, **385**
Hinaidi, 'Iraq, **806**
Malta, **385**
Trebizond, 385
Nervous Sequelae, **806**
Phlebotomus Fever, 388

PELLAGRA, 75–8, **887** (Review of Recent Articles on)
and Beriberi Combined, **905**
Blood Picture in, **890**

Pellagra—*cont.*
Chittenden-Underhill Pellagra-like Syndrome in Dogs: Probable Identity with "Black Tongue": Necrosis, **77**
Drought-induced, 852
Etiological Factors, Search for, **889**
Etiological Theories
Excess of Carbohydrate in Diet, **889**
Food Deficiency, 2, **78, 888, 890**
Amino-Acid, **889**
Protein, **888, 889**
Infection, **887**
Incidence
Age
Breast-fed Infant, **77**
Young Child, **77**
Geographical
Berlin, **890**
Cabo Verde, 852
Egypt (1846), **75**
Italy, in Evacuated Population, **76**
Since 1910, **75**
Ontario, **890**
Portugal, **890**
U.S.A., 75
Massachusetts, **889** *bis*
Southern, 78
West Africa (possible), **890**
West Indies, 2
Occupation, 889
Sex, 889, 890
Lantern Slide Demonstration, **78**
Maize in relation to, 75, 76, **76**
Treatment
Dietetic, 75
Daily Supplemental Meal, **75**
Zeism, Experimental: Causes, **76**

PLAGUE, 357–65, 741–6
Bacteriology
B. pestis
Fine Structure, **365, 745**
Persistence in a Bubo, **362**
Strain Isolated from Healthy Human Carriers: Comparative Virulence, **745**
Pseudo-Plague Cocco-bacillus, **364**
B. pseudotuberculosis rodentum and Chronic Plague, **364**
Bat Susceptibility to, **742**
and Climatic Bubo, **743**
Clinical Forms, **362**
Observations, **745**
Diagnosis, **362**
Importance in, of
Blood Culture, **363**
Thermopreciptin Test, **363**

Plague—*cont.*
Incidence
Geographical
Angola (Loanda), **741**
Astrakan, **359**
D.E.I.: Java, **741** *ter*
Holland, **364**
India: Bombay, 364
Kirghiz Region, **359**
Manchuria, **358, 365**
Harbin, **358**
Paris, 361, **745** *bis*
Russia and Frontiers, **357, 358,** 359
Senegal (1920), 20, **746**
Dakar, 363, **365, 744**
Tananarivo: Epidemic, **365**
Trans-Baikal, **358**
Uganda: Bukedi, **357**
Shipboard, **742**
Melanchthon's Recipes, **745**
Plague Meningitis, **744**
Pneumonic: Pneumonia and, **362**
Prophylaxis
Anti-Plague Vaccination, 20
Pulmonary
Atypical, **744**
Studies on, **743**
Rat-Plague: Indicators: Java, **361**
Report: Bombay Bacteriological Lab. (1921), **364**
in Rodents and Shrews: Dakar, **742**
Septicaemic
Frequency, **363**
Infant Receptivity, **362**
Shrews as Reservoirs: Cambodia, **742**
Some features of, **365**
Sputum, Lab. Exam. of, **745**
Titles of Unnoticed Papers, 365, 748
Transmission, Actual and Possible, by
Camels and Mice, **359** *bis*
Echidnophaga gallinacea, 20
Fleas, 19, **359, 360**
Rats, **360, 361**
in Java, **741** *bis*
Treatment, **745**
[Serotherapy], **362**
Xenopsylla aequisetosus in relation to, 19, **359, 360**

Pneumonia and other Pneumococcus Infections
Pneumococcus, **39** *bis*
African Strains: Agglutination of (*table*), 40
Infections in Black Troops in Africa, **41**
Pneumonia in Belgian Congo, 40

Pneumonia, &c.—*cont.*
Pneumonic Infections in West Africans: P.M. Findings, **41**
Prophylaxis
Pneumococcal Vaccine, 40, 41

Rabies
Incidence
Dahomey, **31**
Dutch East Indies, 603
French Equatorial Africa in Dogs at Brazzaville, **602**
French West Africa, **31**
Irak, **602**
Portugal, 603
Senegal, 20, **31** *bis*
Tunis, 33
Nervous Disease after Treatment with Fixed Virus, **34**
Treatment
Antirabic,
Efficacy, **32**
Instituto Bacteriologico Camara Pestana, Lisbon: Statistics, **603**
Pasteur Institute Methods: Weltevreden, **603**
Carbolized Vaccine, **602**
Virus
Hedgehogs and, **604**
Neurotropic Affinity, **7**
Senegalese: Identification, **31**

RAT-BITE SPIROCHAETOSIS, 581, 880–1
Histological Exam. of Tissues, **881**
Incidence
Colombo, 881
Constantinople, **581**
D.E.I., **880**
India, 581
Etiological Agent, **881**
Italy, **880**
Infecting Agent
in India, **881**
Nature of, **581**
Rash, **581**
Spirochaetes of, 881
and Rat Spirochaetes, Comparative Study of, **581**
Treatment by
Neosalvarsan: Cure, **881**
Sod. Cacodylate, **881**

RELAPSING FEVER and Other Spirochaetoses, 129–40, 578–80, 877–80
Etiology of Complications, **578**
Friedberger's Reaction in, **39**
Historical, **136**

Relapsing Fever—*cont.*
Incidence
[Accra], **580**
Angola, **580**
California, **132**
India, **580** *bis*
United Provinces, **134**
North Africa, **133**
Panama, **131, 132**
Rat as Spreading, **132**
Persia, **134**
Sudan, **132**
Lice as Vectors, 132, 133, 134
Münch's Work on, **136**
Ornithodorus sp. as Vectors, 132, 134–5, 580
Pathological Anatomy, **578**
OTHER SPIROCHAETOSES
AVIAN
Action in, of Bismuth, **910**
Treatment by
914 & 190, Orally, **578**
Trépol, **579**
BRONCHIAL: Bloody, **580**
Castellani's: Treatment by Iodine, **579**
Incidence
China, **137, 580**
Portugal, **137**
Spirochaetosis icterohaemorrhagica, *see* **JAUNDICE, INFECTIOUS**
Sequelae: Hepatic Cirrhosis, **578**
Spirochaetal Diseases, Immunity in, **130** *bis*
Spirochaetes
Associated with: Cultivation, **135** *bis*
crocidurae: Passage through Placenta, **139**
eurygyrata: Life-History: Cultivation, **579**
Panama Species, **131**
Suggested Name, **132**
recurrentis: Development in Man, **135**
in Blackwater Fever (*q.v.*), **138** *bis*, Erratum, **202**
Nature of, **129**
in Rats and Mice, **140**
Title of Unnoticed Paper, 140
Treatment by
Arsalyt, **578**
Neosalvarsan and Lactose Injections, **123**

Reports, Annual
Belgian Congo: Leopoldville Lab. (1921) **512**
British Guiana Soc. for Prev. and Treatment of Tuberculosis (1923), **998**

Reports, Annual—*cont.*
Dutch East Indies
Central Military Med. Lab. (1921) [Beriberi, Dysentery], 22
Civil Med. Service (1920), 753–4
Medan Pathol. Lab. (1907–21), 849
Military Med. Service (1919–20), 22
Weltevreden: Med. Lab. (1920), 21
East African Protectorate Bacteriol. Lab. (1919), 510–11
Egypt: Ophthalmic Section, Ministry of Public Health (1920–1), 504, 505
England: Lunacy Board on Dysentery (1921), 728
Federated Malay States (1921)
Dysentery, 412–13
Institute for Med. Research, 513
Malaria, 301, 457
French West Africa: Inst. Biol. (1920), 19
Gold Coast: Accra: Med. Research Inst. Lab. (1921), 18
Grenada: Intensive Treatment of Yaws (1922), 843
India
Assam: Public Health (1921), 94
Bombay: Bacteriol. Lab. (1920–1), 596
on Plague (1921), 364
League for Combating V.D. (1921–2), 30
Calcutta
Kala Azar Research Lab. (1921), 93
School of Trop. Med. and Carmichael Hosp. (1922), 755
Madras Govt. Gen. Hosp. (1921), 101
King Inst. Preventive Med. (1921–2) and Microbiological Section (Jan.–Mar., 1921), 893
'Iraq Health Services (1921), on Eye Diseases, 988
Japan: Tainan Hospital, Med. (1920–2), 752–3
Mauritius
Bacteriological Lab. (Apr.-Sept., 1922), 513
Med. & San. (1921), 4
North Holland Malaria Commission (1922), 962
Pasteur Institutes
Algeria (1921), 21
Saigon (1921), 894
Tunis (1921), 33
Rio de Janeiro and S. Paulo on the Liga Paulista against Tuberculosis (1922 & 1923), 998, 999

Reports, Annual—*cont.*
South African Inst. for Med. Research (1921), 511–12
Tanganyika Med., San. and Dar-es-Salaam Lab. [on Leprosy] (1921), 483
Transvaal Med. Off. Assoc. on Tuberculosis in Mine Natives (1922 & 1923), 990, 991
Uganda: Bacteriological Dept. (1922), 691

REVIEWS AND NOTICES, 82–4, 166–8, 262–9, 346–52, 432–6, 521–6, 611–14, 685–6, 765–70, 856, 928–32, 1003–6
Alphonse Laveran (Phisalix), 525–6
Bac. & Clin. Obs. on Pneumonia & Empyemata with special Ref. to the Pneumococcus & to Serum Treatment (Glynn, Digby & Jones), 1003–4
Centenaire de Louis Pasteur. Les Instituts Pasteur d'Indochine (Bernard), 433–4
Critical Microscopy (Coles), 346–7
Depopulation of Melanesia (Rivers) 83–4
Diseases of the Skin (McKenna), 351
Framboesia tropica (Spittel), 263
Guide to the Wellcome Museum of Tropical Hygiene, 84
Hygiene and Disease in Eastern Tropical Africa (Admiralty & W.O.), 932
Infusoires ciliés du tube digestif de l'homme . . . (Buisson), 352
Kala Azar (Napier), 928
Laboratory Studies in Tropical Medicine (Daniels & Newham), 434–6
Lymphogranulomatose des Ganglions Inguinaux: Rapports avec Bubon Climatérique (Phylactos), 432–3
Maladies Parasitaires des Plantes (Nicolle & Magrou), 166
Malaria at Nieuwendam (Honig), 685
Malay Poisons and Charm Cures (Gimlette), 351
Med. Pract. in Africa & the East (Martin & Weir), 1004–5

Reviews—*cont.*
Med. Services—Pathology History of the War (Macpherson, Leishman, & Cummins), 1005–6
Memoirs: With Full Account of the Great Malaria Problem and its Solution (Ross), 611–13
North Manchurian Plague Prevention Service Reports, 1918–22 (Teh, W. L.) 82
Parasitic Rhizopods, The (v. Ostertag, Wolffhügel & Nöller), 347–8
Parasitologische Diagnostiek, De, van de Menschelijke Faeces (Brug), 929–30
Peking Medical College Papers, 168, 524
Physiologie Pathologique du Foie (Roger), 166
Poradenitis Inguinal Subaguda (Destefano & Vaccarezza) 525
Practical Bacteriology, Blood Work & Parasitology (Stitt), 685–6
Practical Hygiene of Native Compounds in Tropical Africa (Pearson & Mouchet), 526
Practice of Medicine in the Tropics (ed. Byam & Archibald)
Vol. III, 521–4, 769–70
Section XI. Helminthiasis, 614
Précis de Parasitologie (Brumpt), 262 *bis*
Protists and Disease (Clarke), 351–2
Protozoi patogeni per l'uomo e per gli animali (Sangiorge), 765
Rockefeller Foundation: Review for 1922 (Vincent), 856
System, A, of Surgery (Choyce & Beattie), 767–9
Textbook of Medical Entomology (Martini), 766–7
Tortola (Jenkins), 930–1
Treatment of Malaria with Cinchona Alkaloids (Fletcher), 1004
Typhus Fever: Russian Epidemics (Mitchell, Ashburton & Richardson), 83
Vade Mecum a l'Usage des Infirmiers Médicaux-Indigenes (David), 168

Reviews—*cont.*
Vitamins in Urine (Van der Walle), 765–6
Wayao, The, of Nyasaland (Stannus), 167

Rickets
Incidence
India, **48**
Class Incidence: Causes, 48–9
Singapore, **672**

ROCKY MOUNTAIN SPOTTED FEVER, 387, 808–9
Immunity Studies, **809**
Organisms of: Cultivation, **808**
Rickettsia causing, Cytological Study of, **387**
Transmission by Ticks
Fed and Fasting, **808**
Rabbit Species, **808**
Weil-Felix Reaction in, **808**

SCURVY, 396–9, 818–19
Anaemia, Alimentary, and, **396**
Antiscorbutic
Preparation [from Fresh Cabbage Juice], Effect on Guinea-pigs, **398**
Substance, Non-Antiscorbutic Adjuvants of, **397**
Values of
Native Foods: South Africa, 511
Sterilized Lemon Juice, **397**
Vitamin in
Fresh and Preserved Vegetables, **818**
Oriental Fruits and Vegetables, **818**
Solubility of, from Desiccated Orange Juice, 398
Beer and, **397**
Etiology: Modern Views, **819**
Experimental, **818, 819**
of Guinea-pig, and Tuberculosis, 399
Incidence
Kut, 53
Singapore, 672
South Africa, in Natives, **396**
Infantile
Dried Milk in, **397**
Sero-Diagnosis, &c., **338**
Trypanocidal Bodies in Blood, **337**
Thymectomy in relation to Survival of Guinea-pigs, **819**
Treatment by Orange Juice Intravenously, **396**
Vitamin C Deprivation: Results, **818, 819**

SLEEPING SICKNESS, 309–38, 687–702
GLOSSINA
Bait for, 310, 314
Distribution of Species, 309
palpalis Pupae, far from Water, 317
swynnertoni: Mwanza, 310, 312
Titles of Unnoticed Papers, 338, 702
TRYPANOSOMES
Action on, of Various Drugs, **697**
brucei, as a Filterable Virus, **335**
Trypanocidal Serum and, **335**
Passage through Mice: Spirochaetes present, **701**
cruzi, in Armadillo's Tissues, **699**
Transmission by *Triatoma brasiliensis*, **699**
equiperdum, action on, of "Bayer 205," **325, 702** *bis*
Polymorphic, of Mule: Accra, 19
Two New Trypanocides, **702**
TRYPANOSOMIASES
ANIMAL
DOURINE
Treatment by "Bayer 205," **325**
MAL DE CADERAS
Treatment with "Bayer 205," **326**
NAGANA, Experimental, in Mice: Action of Atoxyl, **701**
Salvarsan in: Relation of Dose to Degree of Infection, **701**
SURRA: Malaya, 326
Treatment with "Bayer 205," **326**
EXPERIMENTAL
Encephalitis in, **699**
Spirochaetes appearing in *T. brucei* passages through Mice, **701**
HUMAN, AFRICAN
Action in, of Bismuth, **910**
Axillary Gland Enlargement in, **690**
Blood in, Influence on, of "Bayer 205," **697**
Cerebrospinal Fluid
Action on, of Tryparsamide, **694**
Arsenic Penetration into, **695**
in relation to Treatment, **329**
Epidemiology, **687**
Incidence
Angola, **316**
Belgian Congo, 512, **691**
Chad, Lake: New Focus, **689**
Fort Lamy Region, 682
French Equatorial Africa, **314**
West Africa, **315, 316**
Lualaba River, **690**

Sleeping Sickness—*cont.*
TRYPANOSOMIASIS—*cont.*
HUMAN—*cont.*
Incidence—*cont.*
Mwanza, **309**
Entomological Aspects, **311** **469**
Nigeria
Eket, **688**
Wamba, 324
Portuguese Africa, 324, **499**
[Rhodesia], **317**
Uganda, **691**
Bukedi, **690**
Interstitial Keratitis in, 317
Prophylaxis: French Equatorial and West Africa, **314, 315, 316**
Treatment
Principles of, during Second Stage, **693**
Various Remedies, 512
Arsenobenzols, Activity of, **697**
Atoxyl: Rules, **691**
"Bayer 205," **317,** 321–2, **322, 323, 324** *bis*, **697, 698, 702**
Summary of Work done with, **325**
Tests, **317** *sqq.*
Trypanolytic Property of Serum after Cure by, **698**
"Marshall" Method, **698**
Intrathecal Injections, **331**
"189," **327, 328** *bis*, **329**
Trépol, **329**
Tryparsamide, **327, 694**
Trypanocidal Serum: Clinical Value, **335**
Trypanocidal Substance in Serum of
Children: Content, **337**
Man, **700**
Disappearance in Liver Disease, **337**
Van Saceghem's Trypanoléine Test, **702**
HUMAN, AMERICAN, CHAGAS'S DISEASE
Cardiac Form, **335**
at Lassance, 699
Trypano-spirochaetic Infection, **701**

Smallpox
Amaas, and Alastrim, 850, **851** *ter*
Incidence
Baghdad, **655**
Belgian Congo, 513

Smallpox—*cont.*
Incidence—*cont.*
Brazil, **656**
British East Africa, 510
in Monkeys, **656**
Treatment, by Pot. permang., 656
Vaccination: Reactions from, in Lepers, **485** *bis*
Vaccine, and Neurotropic Ectodermoses, **680**

SPRUE, 416–17, 733–5
Anaemia in, and in Pernicious Anaemia, **416**
Blood Picture, **735**
Diagnosis, 413
Etiology: New Theory, **733**
Incidence
Geographical
Bombay, 416
D.E.I., 413
Germany: Indigenous, 735
Korea, **416**
Porto Rico, 734
Queensland, 733
U.S.A.: North Carolina, 416
House, **416**
Monilia psilosis Isolated from, 416, 734, 735
Non-Tropical Case, **735**
Personal Experience with, **733**
Titles of Unnoticed Papers, 417, 735
Treatment, Based on New Etiological Theory, **733**
Tropical: Clinical Investigation, **734**

Syphilis
Diagnosis and Treatment: Sachs-Georgi (and other) Reactions for, **515, 516, 517, 518,** 834
Framboesiform [U.S.A.], **178**
G.P.I. in Civilized and Uncivilized Communities, **51**
Incidence
Congo, 517
Libya, **277**
Nigeria, 509
Nervous, in Europeans due to Native African Virus, **30**
Precipitation Tests, **911** *ter*
Sero-Reaction by Levaditi's Test, **517**
Sero-Reactions of, in Malaria, **975**
Syphilides in Old Tattoo Marks, **850**
Treatment: Recent Views on, **653**
Various Means
Antimony, 845
Arsphenamine: Effect on Cardio-Vascular Cases in Negroes, **653**
Bismuthosodium and Pot. Tartrate, 842

Syphilis—*cont.*
Treatment—*cont.*
Various means—*cont.*
Novarsenobenzol, Hepatic Insufficiency with Icterus after, **654**
"189," in Tertiary Cases, **181**
Trépol, **30**
Unity or Duality of, 30
Yaws and, **842**

TUBERCULOSIS IN THE TROPICS, 183–202, 990–1002
Bacillaemia in Blacks, **995**
Bacteriology
B. tuberculosis in Culture: Properties of an Endolipase, **1000**
Influence on, of Chaulmoogra Oil, **200**
Breast, in Sudanese Woman, **194**
Complement Fixation in, in relation to Malaria, **201**
Cuti-Reaction: Various Places, **188** *bis*, **189**, **193**, *table*, 192
and Experimental Scurvy of Guinea-pig, **399**
Human and Animal
Dakar, **186**, **187** *bis*, 188, **1001**
India, 185
Immunity Test, D.E.I., 21
Incidence
Age, **188**, 189
Geographical
Algeria, **189** *bis*
Mecheria, **193**
Saharan, Mzab, **996**
Australia, 199
Belgian Congo, 682
Brazil
Rio de Janeiro, **998**
S. Paulo, **200**, **999**
British Guiana, **998**
D.E.I., 21, 199, **996**
Egypt, with Typhoid-like Pyrexia, **195**
French Colonies, **184**, **188–9**
French Guinea, **188**
India, **184**, 185, 199
North African Oases, **193** *bis*
Senegal, **186** *bis*, **187** *bis*, **188**, **189**
South Africa, **195**, **198**, 199
Transvaal, **990**, **991**
Sudan, **194**
Tropics, **996**
Race, 189, 191
Black Races, **995**
French Army of the Rhine, **993**
French Colonial Troops, 993–4, **995**
Native Miners: Transvaal, **990**, **991**

Tuberculosis—*cont.*
Incidence—*cont.*
Race—*cont.*
South African Natives, 199
Report and Discussion, **195**
Latent, 189, 191
Miner's Phthisis, 199, **990**, **991**
Mortality, **195**
Silicosis and, and Medical Inspection, **199**
Prophylaxis, **189**, **200**
British Guiana, **998**
Dispensaries, **998**, **999**
in reference to French Colonial Troops, **995**
Sanatoria and Clinics, **198**
Phthisis and, **202**
Pulmonary: Problem of Tropical Medicine, **184**
Spread: Methods of, **183**
Simulated by *Monilia tropicalis* Infection, 50
Titles of Unnoticed Papers, 1002
Treatment
in British Guiana, **998**
Clinical Experience of, **999**
Various Means of
Chemotherapy, **1000**
Coconut Oil, 511
Sod. Morrhuate, 200–1, 511, 1000 *bis*
Surgical, 189, 199
and Sea Climate in the East, **199**
Tuberculin Reactions
Dakar, in Children, **188**
French Guinea, **996**
French West Africa, **189**
Mzab, **996**
Tuberculosis Schemes, Need for Research in Framing, **997**
in Zebu: Dakar, 187, **1001**

Typhus Fever
Diagnosis, **38**, 512
Etiology, *Rickettsia* and, **660**
Fevers resembling
Annam, **807**
Australia, **807** *bis*
Friedberger's Reaction in, **39**
Incidence
Algeria, 39
Oran, **37**, **661**
America, South, Biological Reactions, **36**
U.S.: Boston, **38**
Argentina, 662
South Africa, 512
Is it Heritable in Louse? **37**
"Microbion" of, **661**
Organisms of, Cultivation of, **808**

Typhus Fever—*cont.*
Pathogeny, **661**
Prophylaxis
Anti-typhus Campaign, **662**
Simple Means of, **662**
Rickettsia of, **423**
in Infected Lice, **37**
prowazeki and, **662, 663** *ter*
Transmission by Lice, **37** *ter*
Treatment by Pyotherapy, **39**
Weil-Felix Reaction in, **38** *bis*

UNDULANT FEVER, 377–82, 803–4
Associated Enteric Fever and, **379**
B. abortus and *M. melitensis*, Relations of, **382, 803**
Non-Pathogenic to Man, **804**
Incidence
A.-E. Sudan
Khartoum, **803**
Fatal Case, **378**
France, 381
[Marseilles] : Epidemic [at Air Station near], **379**
Paris, 381
Italy, 379
Lima, **380**
Malta, 377
Persia, 803
Russian Turkestan, **803**
South Africa, **377, 378,** 381
U.S.A., Southern States, **380**
Mediterranean Fever or, **377**
Prophylaxis [Goat Immunization], **381**
Treatment by
Abscess of Fixation, 381
[Arsenicals], **381**
Autohaemotherapy : Cure, **381**
Lysed Vaccines, **906**

VERRUGA PERUANA, 810–11
Diagnostic and Clinical Observations, **810**
Mistaken Case, **811**
Prophylaxis, **811**

YAWS, 169–82, 835–44
Bordet-Wassermann, and Wassermann Reactions in, **177,** 512–13, **843**
Cases of, **180** *bis*, **842**
in Conjunction with, or preceding Goundou (*q.v.*), 35
Diagnosis, 512
Formol-gel and Hecht-Bauer Reactions in, **761**
Framboesiform Syphilid, **842**
Syphilis, **178**
Gangosa as caused by, 50
Healing : Histology, **836**
Immunity in, **836**

Yaws—*cont.*
Incidence
Age, 176, 180, 181
Geographical
Brazil, **841**
British East Africa, 182
Ceylon, 169
Kolonna, **841**
Congo, Belgian, **177,** 512–13, 682
French, **176**
Dominica, 836
Durban, 182
Formosa, **841**
Gaboon, **181**
Grenada, **843**
India : History of Introduction, **835**
Libya, **277**
Malaya, **182**
Manila, **175,** 836
Samoa, American, **179, 840**
Santo Domingo, **172, 174**
Togo, 180
U.S.A., **178**
West Indies, 3
Investigations, **836**
Juxta-Articular Nodules (*q.v.*) in, 170
Parangi, **169**
Prophylaxis, 3, **176**
Control : Summary, **836**
Home Visiting, 172
Public Health Aspect, **836**
Relation between, and Syphilis, 171, 178, **179,** 180, **842** *bis*
Treatment, 3
Effect on Wassermann Reaction, **843**
Intensive : Grenada, **843**
Various Means
Antimony, **182, 842**
" Bi 36," **182**
Bismuthosodium and Pot. Tartrate, **842**
Neo-Arsphenamin, **175**
Novarsenobenzol, 177, **180** *bis*
in Enemata, 181
Novarsenobillon, 843
" 189," **181** *bis*
Sulfarsenol, **177, 180**

YELLOW FEVER, 144–7, 585–7, 882–3
Cases Reported as, **146**
Differential Diagnosis, 647
Disappearance from San Domingo, **585**
Disease resembling
Bucaramanga, 911
Ivory Coast, **882**
Etiology, **146**
Exanthems, Acute, and **883** *bis*

Yellow Fever—*cont.*
Experimental
Blood Exam., **586**
Hepatic Lesions, **586**
Immunity-duration after Inoculation, **146**
Incidence
Brazil, **145** *bis*
Grand Bassam, **882**
Mexico, **585**
Vera Cruz, 882
Peru, **145**

Yellow Fever—*cont.*
Incidence—*cont.*
St. Thomas, **144**
Prophylaxis
Inoculation, **146** *bis*, **147**
Stegomyia Indices : Value in, **586**
Serological Reactions, **882**
Spread of : Extract on, from Hirsch, 18
Subtertian Malaria Simulating, 147
Titles of Papers not, or briefly, Noticed, 147

TROPICAL DISEASES BUREAU.

Journals.

Note.—The date and volume number following the title indicate the earliest volume of the series which the Bureau possesses. Dashes after the date and volume number indicate that the intervening parts (unless otherwise stated) are complete to the date of publication of this list.

Series which are complete from the commencement are italicised.

Some of the foreign journals are not up to date.

EUROPE.

Great Britain and Ireland.

Annals of Tropical Medicine & Parasitology (Liverpool)	1907—	Vol. 1—	
British Journal of Ophthalmology (London)	1917–23	Vol. 1–7	
British Medical Journal (London) ..	1876—		
Bulletin of Entomological Research (London)	1910—	Vol. 1—	
Department of Agriculture & Technical Instruction for Ireland Journal (Dublin)	1901—	Vol. 2—	
Ectoparasites (London)	1921—	Vol. 1—	
Edinburgh Medical Journal (Edinburgh)	1908—	(New ser.)	Vol. 1—
Glasgow Medical Journal (Glasgow) ..	1909—	Vol. 71—	
Journal of Comparative Pathology & Therapeutics (Edinburgh & London)	1908—	Vol. 21—	
Journal of Helminthology (London) ..	1923—	Vol. 1—	
Journal of Hygiene (Cambridge) ..	1901—	Vol. 1—	
Journal of the Ministry of Agriculture (London)	1913—	Vol. 20—	
Journal of Pathology & Bacteriology (Cambridge and Edinburgh) ..	1892—	Vol. 1—	
Journal of the Royal Army Medical Corps (London)	1903—	Vol. 1—	
Journal of the Royal Naval Medical Service (London)	1915—	Vol. 1—	
Journal of the Royal Sanitary Institute (London)	1922—	Vol. 42—	
Journal of State Medicine (London) ..	1913	Vol. 21—	
Journal of Tropical Medicine & Hygiene (London)	1898—	Vol. 1—	
Lancet (London)	1824–42	[Incomplete]	1843—
Lister Institute. Collected Papers (London)	1904—	Vol. 1—	
London School of Tropical Medicine. Collected Papers—			
(a) Clinical & Pathological Papers	1922—	Part 1—	
(b) Papers from the Department of Helminthology	1922—	Part 1—	
Medical Science. Abstracts and Reviews (London)	1919—	Vol. 1—	
Parasitology (Cambridge)	1908—	Vol. 1—	
Physiological Abstracts (London) ..	1922–23	Vol. 7.	
Proceedings of the Royal Society, Series B. (London)	1905—	Vol. 76—	
Proceedings of the Royal Society of Medicine (London)	1921—	Vol. 15—	

GREAT BRITAIN AND IRELAND—*cont.*

Public Health (London)	1908—	Vol.	22—
Reports of the Sleeping Sickness Commission of the Royal Society (London)	1903—	No.	1—
Review of Applied Entomology. Series A.: Agricultural. Series B.: Medical & Veterinary (London)	1913—	Vol.	1—
Review of Applied Mycology (Kew) ..	1922—	Vol.	1—
Surveyor & Municipal & County Engineer (London)	1922—	Vol.	62—
Transactions of the Royal Society of Tropical Medicine & Hygiene (London)	1907—	Vol.	1—
Veterinary Journal (London) ..	1909—	Vol.	65—
Veterinary News (London)	1910–21	Vol.	7–18
Veterinary Record (London)	1912—	Vol.	25—

AUSTRIA.

Mitteilungen des Volksgesundheitsamtes im Staatsamt für soziale Verwaltung (Vienna)	1920—	No.	1—
Wiener Klinische Wochenschrift (Vienna)	1913—	Vol.	26—

BELGIUM.

Annales de Médecine Vétérinaire (Ixelles-Brussels)	1913—	Vol.	62—
Annales de la Société Belge de Médecine Tropicale (Brussels)	1920—	Vol.	1—
Archives Médicales Belges (Paris) ..	1917—	Vol.	70—
Bruxelles-Médical (Brussels)	1922—	Vol.	3—
Bulletin de l'Académie Royale de Médecine de Belgique (Brussels) ..	1908–19	(4 ser.)	Vol. 22–29
Bulletin Agricole du Congo Belge (London)	1915—	Vol.	6—
Etudes de Biologie Agricole (London)	1915–16	Nos.	1, 2, 4
International Record of Child Welfare Work (Bulletin International de la Protection de l'Enfance) (Brussels) ..	1923—	No.	18—

DENMARK.

Hospitalstidende (Copenhagen) ..	1921—	Vol.	64—

FRANCE.

Annales de l'Institut Pasteur (Paris) ..	1897—	Vol.	11—
Annales de Médecine et de Pharmacie Coloniales [formerly *Annales d'Hygiène et de Médecine Coloniales (Paris)*]	1898—	Vol.	1—
Annales de Parasitologie Humaine et Comparée (Paris)	1923—	Vol.	1—
Archives de Médecine et de Pharmacie Militaires (Paris)	1914—	Vol.	63—
Archives de Médecine et Pharmacie Navales (Paris)	1907—	Vol.	88—
Archives de Parasitologie (Paris) ..	1898–1919	Vol.	1–16
Bulletin de l'Académie de Médecine (Paris)	1917–21	Vol.	77–86
Bulletin de l'Institut Pasteur (Paris) ..	1903—	Vol.	1—
Bulletin de l'Office International d'Hygiène Publique (Paris)	1909—	Vol.	1—
Bulletin de la Société de Pathologie Exotique (Paris)	1908—	Vol.	1—
Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris (Paris)	1913—	(3 ser.)	Vol. 29—

FRANCE—*cont.*

Caducée (Paris)	1913–19	Vol. 13–19
Comptes Rendus de la Société de Biologie (Paris)	1903—	Vol. 55—
Gazette des Hôpitaux Civils et Militaires (Paris)	1913—	[Vol. 86 incomplete]
Journal de Médecine de Bordeaux et de la Région du Sud-Ouest (Bordeaux)	1923—	Vol. 95—
Medical Bulletin (*Paris*), now *War Medicine*	1917—	Vol. 1—
Presse Médicale (Paris)	1915—	Vol. 23. 1917— Vol. 25—
Recueil de Médecine Vétérinaire (Alfort) .. (1909. Vol. 86.)	1913—	Vol. 90—
Revue de Médecine et d'Hygiène Tropicales (*Paris*)	1904—	Vol. 1—
Revue de Pathologie Comparée et d'Hygiène Générale (Paris)	1917—	Vol. 17—
Revue Générale de Médecine Vétérinaire (Alfort)	1913—	Vol. 21—
Revue Pratique des Maladies des Pays chauds (*Paris*)	1922—	Vol. 1—
Revue Vétérinaire (Toulouse)	1913—	Vol. 38—
War Medicine (*Paris*) formerly *Medical Bulletin*	1917–18	Vol. 1–2

GERMANY.

Arbeiten aus dem Reichsgesundheitsamte (Berlin)	1913—	Vol. 43—
Archiv für Protistenkunde (Jena) ..	1902–6	Vols. 1–7
	1907–12	Vols. 9–27
	1913—	Vol. 30—
Archiv für Schiffs- und Tropen-Hygiene [*& Beihefte*] (*Leipzig*)	1897—	Vol. 1—
Archiv für Wissenschaftliche und Praktische Tierheilkunde (Berlin) ..	1917—	Vol. 43—
Berliner Tierärztliche Wochenschrift ..	1914—	Vol. 30— [Incomplete]
Centralblatt für Bakteriologie (Jena) 1. Abteilung. Originale	1912—	Vol. 65—
Deutsche Medizinische Wochenschrift (Berlin)	1909—	Vol. 35—
Lepra (Leipzig)	1913–17	Vol. 14–15
Mitteilungen d. Tierseuchenstelle d. Thuringischen Landesanstalt f. Viehversicherung	1922—	Vol. 2—
Münchener Medizinische Wochenschrift (Munich)	1914—	Vol. 61—
Zeitschrift für Hygiene und Infektionskrankheiten (Leipzig)	1912—	Vol. 72—
Zeitschrift für Infektionskrankheiten parasitäre Krankheiten und Hygiene der Haustiere (Berlin)	1917–20	Vol. 18–20
	1922—	Vol. 24—
Zeitschrift für Immunitätsforschung und Experimentelle Therapie (Jena) Originale	1908—	Vol. 1—

GREECE.

Grèce Médicale & Ἰατρικὴ Πρόοδος (Athens)	1912—	Vol. 14— [Incomplete]

HOLLAND.

Folia Microbiologica (Delft)	1912–19	Vols. 1–4
Janus (Leyden)	1909—	Vol. 14—
Mededeelingen van het Kolonial Instituut, Afdeeling Tropische Hygiene (Amsterdam)	1914—	
Tijdschrift voor Diergeneeskunde (s'Gravenhage)	1920—	Vol. 47—
Tijdschrift voor Vergelijkende Geneeskunde, enz. (Leyden)	1922—	Vol. 7—

ITALY.

Annali d'Igiene [formerly Annali d'Igiene Sperimentale] (Rome) ..	1912—	Vol. 22—
Annali di Medicina Navale e Coloniale (Rome)	1908—	Anno 14—
Archivio di Farmacologia Sperimentale e Scienze affini. (Rome) ..	1918—	Vol. 26—
Annali della Stazione Sperimentale per le Malattie Infettive del Bestiame (Naples)	1911—	Vol. 1—
Bollettino dell' Instituto Sieroterapico Milanese (Milan)	1917—	Vol. 1—
Bollettino della Società Medico Chirurgica di Modena (Modena)	1914—	Vol. 16— [Incomplete]
Clinica Veterinaria (Milan)	1913—	Vol. 36—
Giornale di Clinica Medica (Parma) ..	1920—	Vol. 1—
Giornale di Medicina Militaire (Rome)	1914—	Vol. 62—
Giornale della R. Accademia di Medicina di Torino (Turin)	1912—	Vol. 75—
Giornale della Reale Società Italiana d'Igiene (Milan)	1913—	Vol. 35—
Haematologica (Naples)	1922—	Vol. 3—
International Review of the Science & Practice of Agriculture (Rome) ..	1920—	Vol. 11—
Malaria e Malattie dei Paesi Caldi (Rome)	1910–17	Vols. 1–8 [Vols. 1–3 incomplete]
Malariologia [formerly Propaganda Antimalarica] (Naples)	1911—	Vol. 4—
Moderno Zooiatro (Bologna)		
Parte professionale ..	1913—	Vol. 2—
Parte scientifica ..	1913—	Vol. 2—
Nipiologia (Naples)	1919—	Vol. 5—
Nuovo Ercolani (Milan)	1913—	Vol. 18—
Pathologica (Genoa)	1908—	Vol. 1—
Pediatria (Naples)	1913—	Vol. 21— (Ser. 2. Vol. 77—)
Policlinico (Rome) .. Sez medica ..	1912—	Vol. 19—
Sez pratica ..	1912—	Vol. 19—
Rivista Critica di Clinica Medica (Florence)	1913—	Vol. 14—
Rivista Pellagrologica Italiana (Florence)	1913—	Vol. 13— No. 4—
Sperimentale (Florence)	1913—	Vol. 67—

NORWAY.

Norsk Magazin for Laegevidenskaben (Christiania)	1921—	Vol. 82—

POLAND.

Medycyna Doswiadczalna i spoleczna [formerly Przeglad Epidemjologiczny] (Warsaw)	1920—	Vol.	1—	

PORTUGAL.

Arquivos de Higiene e Patologia Exoticas (Lisbon) [formerly Archivos, &c.] ..	1905—	Vol.	1—	
Archivos do Instituto Bacteriologico Camara Pestana (Lisbon)	1906—	Vol.	1—	
Bulletin de la Société Portugaise des Sciences Naturelles (Lisbon)	1907—	Vol.	1—	
Medicina Contemporanea (Lisbon) ..	1913—	Vol.	31—	

ROUMANIA.

Archivia Veterinara (Bucarest) ..	1920—	Vol.	14—	
Bulletin et Mémoires de la Société Médicale des Hôpitaux de Bucarest ..	1919—	Vol.	1—	

RUSSIA.

Revue de Microbiologie et d'Epidemiologie (Saratov)	1922—	Vol.	1—	

SPAIN.

Archivos del Instituto Nacional de Higiene de Alfonso XIII (Madrid) ..	1922—	Vol.	1—	
Boletin del Instituto Nacional de Higiene de Alfonso XIII (Madrid) ..	1913–19	Vols.	9–15	
Revista Española de Medicina y Cirugia (Barcelona)	1918—	Vol.	1—	No. 1
Revista de Higiene y Sanidad Pecuarias (Madrid)	1917—	Vol.	7—	
Revista Medica de Barcelona (Barcelona)	1924—	Vol.	1—	

SWEDEN.

Acta Medica Scandinavica (Stockholm)	1920—	Vol.	54—	
Hygiea (Stockholm)	1920—	Vol.	82—	
Skandinavisk Veterinär-Tijdskrift (Uppsala & Stockholm)	1911—	Vol.	1—	

SWITZERLAND.

International Journal of Public Health (Geneva)	1920–21	Vols.	1–2	
Schweizer Archiv für Tierheilkunde (Zurich)	1913—	Vol.	55—	

TURKEY.

Bulletin Sanitaire de Constantinople [formerly *Bulletin de l'Administration Sanitaire des frontières*] *(Constantinople)*	1921–23	Nos.	1–20	

AMERICA.

CANADA.

Canadian Medical Association Journal (Toronto)	1911—	Vol.	1—	

CENTRAL AMERICA AND WEST INDIES.

Boletin de la Asociacion Médica de Puerto Rico (San Juan)	1914—	Vol.	10—	
Jamaica Public Health Bulletin ..	1917—			

CENTRAL AMERICA AND WEST INDIES *cont.*

Monthly Reports of the Department of Health of the Panama Canal (Washington)	1907—			
Proceedings of the Medical Association of the Isthmian Canal Zone, formerly *Proceedings of the Canal Zone Medical Association* (*Mount Hope, C.Z.*) ..	1908—	Vol.	1—	

SOUTH AMERICA.

Amazonas Medico (*Manaos*)	1918—	Vol.	1—	
Anales del Departmento Nacional de Higiene (Buenos Aires) ..	1919—	Vol.	25—	
Anales de la Direccion de la Sanidad Nacional (*Caracas*)	1919—	Vol.	1—	
Anales de la Facultad de Medicina (*Lima*)	1918—	Vol.	1—	
Anales del Instituto Modelo de Clinica Médica (Buenos Aires)	1917—	Vol.	2—	
Annaes Paulistas de Medicina e Cirurgia (San Paulo)	1915—	Vol.	4—	No. 3—
Archivos Brasileiros de Medicina (*Rio de Janeiro*)	1911—	Vol.	1—	
Archivos da Escola Superior de Agricultura e Medicina Veterinaria (*Pinheiro, E. do Rio.*)	1917—	Vol.	1—	
Boletin de la Sociedade de Medicina e Cirurgia de S. Paulo (Brazil) ..	1919—	Vol.	2—(ser. 2)	No. 2—
Brazil Medico (Rio de Janeiro) ..	1909	Vol.	23—	
British Guiana Medical Annual ..	1890–92, 1894–1902, 906—			
Cronica Medica (Lima)	1913—	Vol.	30—	
Gaceta Medica de Caracas (Caracas) ..	1914—	Vol.	21—	
Gaceta Medica de Ciudad-Bolivar (Ciudad-Bolivar, Venezuela) ..	1920—	No.	67—	
Memorias do Instituto Butantan (*S. Paulo*)	1918—	Vol.	1—	
Memorias do Instituto Oswaldo Cruz (*Rio de Janeiro-Manguinhos*) ..	1909—	Vol.	1—	
Repertorio de Medicina y Cirugia (Bogota)	1914—	Vol.	6—	
Revista Clinica (*Medellin, Colombia*) ..	1916—	Vol.	1—	
Revista del Instituto Bacteriologico (Buenos Aires)	1918–19	Vols.	1–2	[Incomplete]
Revista Medico-Cirurgia do Brazil (Rio de Janeiro)	1921—	Vol.	29—	
Revista de Veterinaria e Zootechnia (Rio de Janeiro)	1917—	Vol.	7—	
Revista Zootecnica (Buenos Aires) ..	1920—	Vol.	7	No. 84—
Saúde (Rio de Janeiro)	1919—	Vol.	2—	
Sciencia Medica. Revista Brasileira de Medicina e Sciencias Affins (*Rio de Janeiro*)	1923—	Vol.	1—	
Servico Sanitario do Estado de Sao Paulo	1918—	N.S. No.	1—	

UNITED STATES.

American Journal of Hygiene (*Baltimore*)	1921—	Vol.	1—	
American Journal of Tropical Medicine (*Baltimore*)	1921—	Vol.	1—	

UNITED STATES—*cont.*

American Journal of Veterinary Medicine (Chicago)	1913—	Vol. 8—
Archives of Dermatology & Syphilology [*formerly* Journal of Cutaneous Diseases including Syphilis] (New York)	1913—	Vol. 31—
Archives of Internal Medicine (*Chicago*)	1908—	Vol. 1—
Boston Medical & Surgical Journal (Boston)	1915—	Vol. 172—
Bureau of Animal Industry Bulletins (Washington)	1909—	[Incomplete]
Collected Reprints from the George Williams Hooper Foundation for Medical Research (Univ. of California)	1915—	Vol. 1—
Collected Studies from the Research Laboratory, Department of Health, City of New York	1906—	Vol. 1—
Cornell Veterinarian (Ithaca, N.Y.) ..	1917—	Vol. 7—
Experiment Station Records (Washington)	1921—	Vol. 44—
Hygienic Laboratory Bulletins (Washington)	1903—	[Incomplete]
Illinois Biological Monographs (*Urbana*)	1915—	Vol. 1—
Index Medicus (Washington)	1912–20	(2 ser.) Vol. 10–18
Journal of Agricultural Research (Washington)	1920—	Vol. 20—
Journal of the American Medical Association (Chicago)	1910—	Vol. 54—
Journal of the American Veterinary Medical Association	1917—	Vol. 51—
Journal of Economic Entomology (*Concord*)	1908—	Vol. 1—
Journal of Experimental Medicine (*New York*)	1896—	Vol. 1—
Journal of Industrial Hygiene & Abstract of Literature (Boston) ..	1922—	Vol. 3—
Journal of Infectious Diseases (*Chicago*)	1904—	Vol. 1—
Journal of Laboratory & Clinical Medicine (St. Louis)	1916—	Vol. 2—
Journal of Medical Research (Boston)	1919—	Vol. 41—
Journal of Parasitology (*Urbana*) ..	1914—	Vol. 1—
Journal of Sociologic Medicine (Easton)	1916–18	Vol. 17–19
Long Island Medical Journal	1919—	Vol. 13—
Medical Record (New York)	1914–22	Vols. 86–101
Military Surgeon (Washington) ..	1913—	Vol. 33—
Monographs of the Rockefeller Institute for Medical Research (New York) ..	1920—	No. 13—
New Orleans Medical & Surgical Journal (New Orleans)	1912—	Vol. 65—
New York Medical Journal (New York)	1910–20	Vols. 91–112
Proceedings of the New Jersey Mosquito Extermination Association ..	1914—	
Proceedings of the Society for Experimental Biology and Medicine (*New York*)	1903—	Vol. 1—
Proceedings of the United States National Museum (Washington) ..	1879—	Vol. 2— [Incomplete]
Public Health Bulletins (Washington)	1908—	[Incomplete]
Public Health Reports (Washington) ..	1909—	Vol. 24—

UNITED STATES—*cont.*

School of Hygiene & Public Health: Johns Hopkins University: Collected Papers (Baltimore)	1920—	Vol.	1—
Southern Medical Journal (Nashville, Tenn.)	(1911, 1912 incomplete) 1913—	Vol.	6—
Southwestern Medicine (El Paso, Texas)	1917—	Vol.	1—
Studies from the Rockefeller Institute for Medical Research. Reprints (New York)			
Texas State Journal of Medicine (Fort Worth)	1905–22	Vols.	1–18 [Incomplete]
United States Naval Medical Bulletin (Washington)	1909—	Vol.	3—
United States War Department Bulletin (Washington)	1913—	No.	1—
University of California (Berkeley):			
Publications in Pathology	1903—	Vol.	1—
Publications in Zoology	1908—	Vol.	6—
University of Kansas: Science Bulletin (Lawrence)	1902—	Vol.	1—
Venereal Disease Information (Washington)	1923—	Vol.	4—

ASIA.

CHINA.

Bulletin Médical Franco-Chinois (Peking)	1920—	Vol.	1—
China Medical Journal (Shanghai)	1912—	Vol.	26—
Contributions from the Peking Union Medical College (Peking)	1921—	Vol.	1—
National Medical Journal of China (Shanghai)	1919—	Vol.	5—

EAST INDIAN ARCHIPELAGO.

Geneeskundig Tijdschrift voor Nederlandsch-Indië (Rijswijk-Batavia)	1901—	Vol.	41— [Incomplete]
Journal of the Philippine Islands Medical Association (Manila)	1921—	Vol.	1—
Mededeelingen van den Burgerlijken Geneeskundigen Dienst in Nederlandsch-Indië (Batavia)	1912—	Vol.	1—
Mededeelingen uit het Geneeskundig Laboratorium te Weltevreden (Batavia)	1919—	3 Ser. A.	No. 1—
Monthly Bulletin of the Philippine Health Service (Manila)	1921—	Vol.	1—
Nederlandsch-Indische Bladen voor Diergeneeskunde en Dierentielt (Batavia)	1919—	Vol.	31—
Philippine Agricultural Review (Manila)	1916—	Vol.	9—
Philippine Journal of Science, formerly *Philippine Journal of Science. Section B. Philippine Journal of Tropical Medicine (Manila)*	1906—	Vol.	1—

EGYPT.

Magallah Tibbiah El Masriah (Cairo)	1923—		

INDIA.

Agricultural Research Institute, Pusa, Bulletins. (Calcutta)	1912—		[Incomplete]
Arquivos Indo-Portugueses de Medicina e Historia Natural (*Nova Goa*) ..	1921—	Vol. 1—	
Boletim Geral de Medicina e Farmacia (Nova Goa)	1919—	5 Ser.	No. 1—
Indian & Eastern Engineer (Calcutta) ..	1915—	Vol. 36—	
Indian Engineering (Calcutta) ..	1915—	Vol. 57—	No. 6—
Indian Journal of Medical Research (*Calcutta*)	1913—	Vol. 1—	
Indian Medical Gazette (Calcutta) ..	1889–1908	[Vols. 24 & 34–43 Incomplete]	
	1909—	Vol. 44—	
Journal of the Association of Medical Women in India (Delhi)	1923—	Vol. 11—	
Madras Veterinary Journal (Madras) ..	1919—	Vol. 1—	
Memoirs of the Department of Agriculture in India. (*Calcutta*)			
Bacteriological Series ..	1912—	Vol. 1—	
Veterinary Series ..	1913—	Vol. 1—	
Report of the Agricultural Research Institute and College, Pusa. (Calcutta)	1907—		[Incomplete]

INDO-CHINA, AND FURTHER INDIA.

Annual Reports of the Institute for Medical Research, Kuala Lumpur, Federated Malay States. (Kuala Lumpur)	1912—		
Bulletin de la Société Médico-Chirurgicale de l'Indochine (Hanoi & Haiphong)	1910—	Vol. 1—	[Vol. 2 Incomplete]
Medical Journal of the Siamese Red Cross	1918—	Vol. 1—	
Studies from Institute for Medical Research, Federated Malay States (Singapore)	1901—	Vol.1—	[Incomplete]
Transactions of the Malaya Branch of the British Medical Association (Singapore)	1923—	No. 9—	

JAPAN.

Acta Scholae Medicinalis Universitatis Imperialis in Kioto (*Kioto*)	1916—	Vol. 1—	
Aichi Journal of Experimental Medici (*Nagoya*)	1923—	Vol. 1—	No. 1—
Japanese Journal of Medical Sciences. Abstracts (*Tokyo*)	1922—	Vol. 1—	
Japan Medical World (Tokyo)	1921—	Vol. 1—	
Japanische Zeitschrift für Dermatologie u. Urologie (Tokyo)	1917—	Vol. 17—	No. 7—
Jikwa Zasshi	1917–22		
Journal of the College of Agriculture, Imperial University of Tokyo (*Tokyo*)	1916—	Vol. 3—	
Journal of the Japanese Society of Veterinary Science	1922—	Vol. 1—	
Kitasato Archives of Experimental Medicine (*Tokyo*)	1917—	Vol. 1—	
Kyoto Igaku Zassi (Kyoto)	1917–21	Vols. 14–18	

JAPAN—*cont.*

Mitteilungen aus der medizinischen Fakultät der Kaiserlichen Kyushu-Universität (Fukuoka)	1917—	Vol. 3—
Mitteilungen aus der medizinischen Fakultät der Kaiserlichen Universität zu Tokyo (Tokio)	1911—	Vol. 10—
Mitteilungen ueber allgemeine Pathologie und pathologische Anatomie [formerly *Mitteilungen aus dem pathologischen Institut der Kaiserlichen Universität zu Sendai, Japan*]	1919—	Vol. 1—
Mitteilungen der Medizinischen Gesellschaft zu Tokio (Tokio)	1917–20	Vol. 31–34
Saikingaku Zasshi	1917–23	
Sei-i-Kwai Medical Journal (Tokio) ..	1913—	Vol. 32—
Taiwan Igakkai Zasshi	1917—	
Tokyoer Medizinische Wochenschrift (Tokyo)	1917—	No. 2046
Verhandlungen der Japanischen Pathologischen Gesellschaft (*Tokyo*) ..	1911—	Vol. 1—

AFRICA.

Archives de l'Institut Pasteur d'Algerie (*Algiers*)	1923—	Vol. 1—
Archives de l'Institut Pasteur de Tunis (*Tunis*)	1906—	Vol. 1—
Archives des Instituts Pasteur de l'Afrique du Nord (*Algiers & Tunis*)	1921–22	Vols. 1–2
Archivio Italiano di Scienze Mediche Coloniali (*Tripoli*)	1920—	Vol. 1—
Bulletin de la Société Medico-Chirurgicale française de l'Ouest-Africain (*Dakar*)	1919–21	Vols. 1–3
Bulletin de la Société Ophthalmologie d'Egypte	1912—	
Journal of the Department of Agriculture, Union of South Africa (Pretoria)	1921—	
Maroc-Médical (Casablanca)	1923—	No. 13—
Medical Journal of South Africa [formerly Transvaal Medical Journal] (Johannesburg)	1912—	Vol. 8—
Nyasaland Sleeping Sickness Diary (*Zomba*)	1908–15	No. 1–25
Proceedings of the Transvaal Mine Medical Officers' Association (*Johannesburg*)	1921—	Vol. 1—
Revista Médica de Angola (*Loanda*) ..	1921—	Vol. 1—
Rhodesia Agricultural Journal (Salisbury)	1915—	Vol. 12—
South African Institute for Medical Research (*Publications*)	1913—	Vol. 1—
South African Medical Record (Cape Town)	1910—	Vol. 8—

AUSTRALASIA.

AUSTRALIA.

Australian Institute of Tropical Medicine. Collected Papers (*Townsville*) ..	1914—	No. 1—
Commonwealth of Australia Quarantine Service Publications (*Melbourne*)	1913—	No. 1—

AUSTRALIA—*cont.*

Health (Melbourne)	1923—	Vol.	1—	
Health Forum (Sydney)	1923—	Vol.	1—	
Medical Journal of Australia (Sydney)	1914—	Vol.	1—	
Queensland Agricultural Journal ..	1919—	Vol.	12—	
Records of the South Australian Museum	1918—	Vol.	1—	

NEW ZEALAND.

New Zealand Medical Journal (Wellington)	1913—	Vol.	12—	No.45—

The Bureau possesses complete sets of the following TROPICAL JOURNALS WHICH HAVE CEASED PUBLICATION :—

American Journal of Tropical Diseases and Preventive Medicine (New Orleans)	1913–16	Vols.	1–3	
American Society of Tropical Medicine (Transactions) (New Orleans) ..	1904–14	Vols.	1–9	
Archives des Instituts Pasteur de l'Afrique du Nord (Algiers & Tunis).	1921–22	Vols.	1–2	
Journal of the London School of Tropical Medicine (London)	1911–13	Vols.	1–2	
Journal of Tropical Veterinary Science (Calcutta)	1906–12	Vols.	1–7	
Kala Azar Bulletin (London)	1911–12	Nos.	1–3	
Paludism (Simla)	1910–12	Nos.	1–5	
Scientific Memoirs by Officers of the Medical & Sanitary Departments of the Government of India (Calcutta) ..	1902–13 (New ser.)	Nos.	1–60	
Sleeping Sickness Bulletin (London) ..	1908–12	Vols.	1–4	
Yellow Fever Bureau Bulletin (Liverpool)	1911–15	Vols.	1–3	

NOTE.—The Director would consider proposals for the exchange of the Bureau publications with other medical and scientific journals in which original papers on tropical diseases or parasitology are published.